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From the Journal and Proceedings, Asiatic Society of Bengal
(New Series), Vol. V, No. 9, 1909.

**Notes on Seven Sixteenth Century Cannon recently
discovered in the Dacca District.**

By H. E. STAPLETON.

33. Note on Seven Sixteenth Century Cannon recently discovered in the Dacca District.

By H. E. STAPLETON, *Inspector of Schools, Dacca Division.*

On February 12th, 1909, seven brass cannon were discovered by some men who were excavating earth in the small village of *Dīwān Bāgh*, or, as it is written on the 1"=1 mile Survey map, *Munnoohur Khaner Bagh*. The village is situated about seven miles north-east of *Narainganj*, near the junction of a streamlet called the *Akātia Khāl* with the *Sītal Lākhyā*, and was formerly the residence of *Munawwar Khān*, the great-grandson of the 'Isā Khān, whose name is borne on one of the cannon. The present owner of the land is *Maulvi Muzaffar Husain*. The find was reported to the Sub-Divisional Officer of *Narainganj*, and, on the cannon being brought to *Dacca*, they were handed over to me for description by *Mr. S. E. Stinton*, the present Magistrate of *Dacca*.

The appearance of the cannon will be evident from the annexed photo (Plate XXV). Four have muzzles shaped like a lion or tiger's head, probably in compliment to the king whose name is found engraved on the first one—*Sher Shāh*, the conqueror of *Humāyūn*. Their date is certain from the inscription given on the same cannon, which shows that it was cast in the year 949 A.H. (= 1542 A.D.). Of the remaining three, the first bears the name of 'Isā Khān, ruler of Eastern Bengal in the last quarter of the sixteenth century, with the date 1002 A.H. (= 1593 A.D.). The second bears some family resemblance to the cannon of 'Isā Khān, and may date from the same period. The last of the seven has no inscription by which the date could be fixed, and nothing but its discovery with the other cannon would enable us to say to what period it belonged.

The cannon vary in length from 3ft. 10 in. to 5ft. 1 in., and in weight from 1 to 2 maunds. They were probably used on ships of war (the *nawwārah*), but the gun bearing the name of 'Isā Khān is handy enough to serve as an elephant-gun. Their method of mounting is shown by the remains of the iron forks that still clasp the trunnions of two of the guns. This would permit only of motion up and down in a vertical plane, but the block of wood that carried the prong might in turn have been able to rotate on a vertical axis, thus giving the gun a horizontal motion as well. The butt of each gun was cast with a socket, into which a long handle or rod of iron was fitted to facilitate the aiming of the gun.

The following is a detailed account of the guns and all inscriptions that are to be found on them, taking the guns in the order from left to right in which they are arranged in the photo.

I. Tiger-mouthed, with ornamental band round the tiger's neck, and another 6 inches behind. Similar ornamental bands also occur at the breech and the trunnions.

The main inscription on this gun (*vide* Plate XXVI) is specially interesting, both because a date is given, and also for the information afforded by it regarding the arsenal assistants employed by Sher Shāh. If Sher Shāh thus employed natives of Asia Minor or Turkey to improve the make of his guns, it seems possible that the marked improvement that occurred in the coinage during his reign may also have originated from the West.

The main inscription, which is 1½ inches broad, and occupies the entire upper portion between the backsight and muzzle of the gun, runs as follows :—

در عهد پادشاه عادل شیر شاه خلد الله مملکه و سلطانه در تاریخ نهم چهل
نه عمل سید احمد رومی *

شیر شاه عادلے گاندو جهان * نام ذکوبش بماند چاروان

“ In the time of the Just King Sher Shāh—May God perpetuate his kingdom and rule!—Saiyid Ahmad Rūmī wrought (this cannon) in the year 949.

“ Sher Shāh, who is just in the world,
May his good name continue for ever.”

The date shows that the gun was cast in the next year after Sher Shāh had deposed Khizr Khān—the first Governor of Bengal after Sher Shāh had reconquered Gaur in 946 (1539 A.D.)—and divided up Bengal into districts, each under an Amīr, with Qāzī Fazilat as Amīn (*vide* Blochmann, *History and Geography of Bengal*, III, *J.A.S.B.*, 1875, p. 295). The disciplinary measures taken against Khizr Khān probably account for the absence of any ruler's name in the inscription, save that of the Pādshāh himself.

Immediately behind the backsight occur the figures ৩১৪, the present Bengali method of writing 3 maunds and 14 seers, and behind this again is a ☒ mark at the extreme end of the socket. On the lower side of the gun are found three inscriptions. The first, below the muzzle, is scratched in Persian *shikast*, and gives either the name of the gunner or a subsequent owner, *Rij'at Ghāzī* رفعت غازی. Another ☒ mark also is seen here, just above the name. At the other end, below the breech, is found in Bengali the name *Tarap Rājā*. This may be taken as the name of the gun, and possibly has reference to some expedition during the sixteenth century into South Sylhet, of which *Taraf* is an important parganah. The fort at Jangalbārī (in the present

Kishoreganj Sub-Division of Mymensingh) which 'Isā Khān captured from the Kochs about the year 1585 and where his descendants still reside, is not far west of Taraf.¹

Just beyond the words Tarap Rājā, but upside down, are found the figures ২১৬, or, in other words, 2 maunds 16 seers. Neither this weight, however, nor the one near the backsight, correspond at all with the actual present weight of the gun, which is only 1 maund 27 seers. The length of the gun, from the extreme front of the muzzle to the end of the brass socket at the breech, is 4ft. 9 inches, and its bore is $1\frac{3}{4}$ inches in diameter. The circumference of the gun immediately behind the tiger's head is $9\frac{1}{4}$ ins., while just in front of the backsight it is 1 ft. $\frac{1}{4}$ in.²

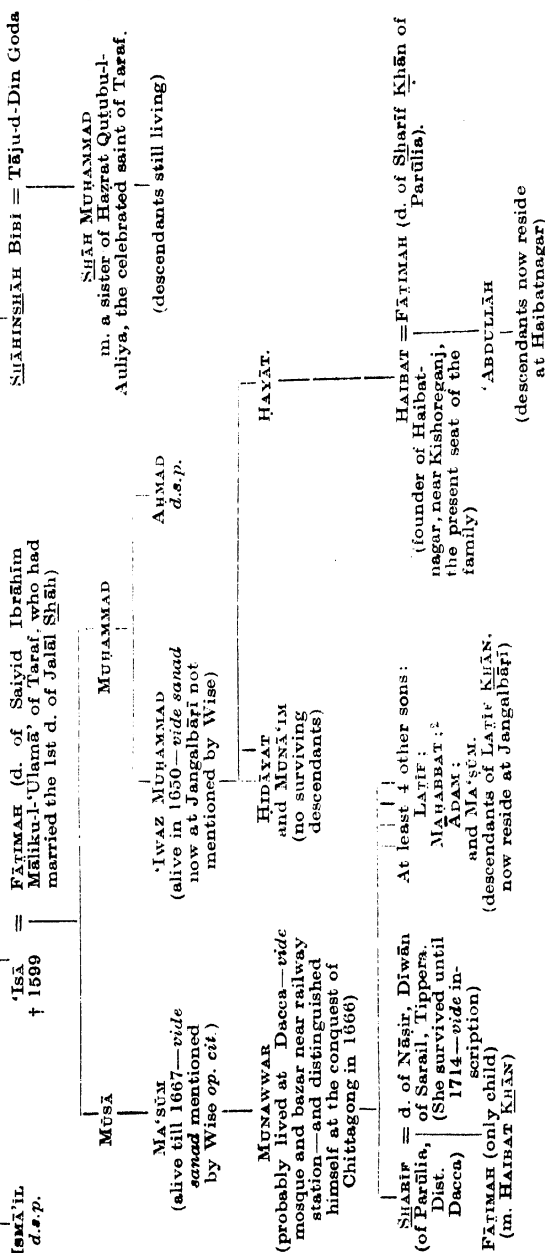
II and III. Tiger-headed guns of similar make to the first, but differing slightly in details of the tiger's head, the position of the front band, and the length of the socket at the breech. No. II, which weighs 1 maund $30\frac{1}{4}$ seers and has a bore of $1\frac{3}{4}$ inches, has nothing inscribed on it beyond a mark ৬ 6 inches behind the foresight, which is just visible in the plate. No. III, the weight of which is 1 maund $36\frac{1}{2}$ seers (including the fork at the trunnions), has a bore 2 inches in diameter and is 5 ft. 2 inches long. Of the inscriptions the most interesting is the name of a previously unknown Governor, *Sirkār Ma'būd Khān*, سرکار معبود خان scratched in Persian *shikast* just behind the foresight. On the top, just behind the trunnions, is found the number ১০ (10), probably the number of the gun, while on the right-hand side, halfway between the breech and trunnions, occur the Bengali numbers ২১৬, i.e., 2 maunds 16 seers. It is difficult to offer any very satisfactory explanation for the discrepancies between the present weights of these guns and those recorded on them by the original owners, but if (following Thomas' *Chronicles*, p. 430) we take the Sher Shāh maund to be 51·8 lbs. avoirdupois (i.e. $\frac{28}{30}$ of Akbar's maund of 55·5 lbs.), a fair approxima-

¹ It even seems possible that 'Isā Khān enlisted the aid of the Tipperas against the Imperialists under Shāhbāz Khān (*vide* account of cannon No. V. later), as Long in his analysis of the Tippera *Rājmalā* (*J.A.S.B.*, 1850, p. 549) states that when the Muhammadans invaded Tippera in 1587 the victorious commander of the Tippera troops was called "Issah-Khan." The Rājā Amar Māṇikya, in whose reign this occurred, had previously (c. 1580) waged war against the Zemindar of Taraf, and brought his son captive in a cage to Udāyāpūr, the then Capital of Tippera.

² An analysis of the metal of which this cannon is composed was made at my request by Bābu Phani Bhūshan Mukerjī, a pupil of Prof. Watson of the Dacca College, with the following result:—

Cu	..	..	84·72%
Zn and Fe	..	..	13·32%
Sn	..	..	1·83%
TOTAL			99·87%

3rd d. of Jalāl Shāh Sūrī,
Ruler of Bengal 1561—1563 A.D.¹



SHARĪF = d. of Nāṣir, Diwān (of Parūliā, of Sarail, Tippera. Dist. (She survived until Dacca) 1714—*vide* inscription)

FĀTIMAH (only child) (m. **HAIBAT KHĀN**)
(descendants of LATĪF KHĀN, now reside at Jangalbārī)

¹ The other version (given by Dr. Wise) that Sulaimān married a daughter of Sulṭān Husain Shāh of Bengal is improbable from the date of that ruler (1493-1520). The pedigree follows the statements made in the *Masnad Alā' Ithās* (History of the Musnad-i-'Alī) compiled by Munshi Rāj Chandra Ghosh and Pandit Kālā Kumār Chakravarti and published by the family at Dacca in 1298 B.S. (1891 A.D.). Kālīdās is said to have been minister to Bahādur Shāh Sūrī, Jalāl Shāh's elder brother, who ruled Bengal from 1555—1561, and to owe his name Gajdānī to his generosity in giving away daily a gold elephant as alms. Jalāl Shāh's third daughter is said to have married Kālāpāhār, the celebrated general of Sulaimān Karārānī, the next ruler of Bengal (1564—1572). The writers of the *Ithās* make some attempt to identify the latter ruler with Kālīdās Gajdānī. (15-8-06)

² There is a parganah Malhabbatpūr in the Dacca district which is probably called after this son of Munawwar Khān. It is now practically represented by the Char in the River Padma immediately to the south of Rājābārī, where the Padma joins the Meghna. (15-8-09)

Bengal, in the interval between the death of Dā'ūd Shāh, the last independent king of Bengal in 1576, and the reconquest of Eastern Bengal and Orissa by Mān Singh in 1593. From the 'Ain we gather that 'Isā Khān successfully withstood the previous invasion of the Imperialist General Shāhbāz Khān in 1585, and Ralph Fitch who visited Sunārgānw in 1586 records that "the Chief King of all these Countries is called Isacan and he is the chief of all the other kings." 'Isā Khān remained in a semi-independent state until 1593, when Mān Singh was sent to Bengal to bring the country thoroughly under the Imperial sway. After establishing his base at Sherpūr Mūrcha in Bogra, he marched east across country and began to besiege 'Isā Khān's fort at Egāro Sindhu, a strategic position on the boundary of Mymensingh and Dacca, at the point where the Banār river breaks off west from the Brahmaputra. A personal combat between 'Isā Khān and Mān Singh ensued, which ended in 'Isā Khān sparing the life of Mān Singh, and the two rivals becoming firm friends. 'Isā Khān accompanied Mān Singh back to Āgra, where he was at first thrown into prison. Later, when the Emperor heard the story of the fight at Egāro Sindhu, he conferred on 'Isā Khān the titles of Dīwān and Masnad-i-'Alī, and granted him for support 22 parganahs in Mymensingh and Dacca.

The inscription given below (though the reading of the first half of the second line—*vide* Plate XXVII—is unsatisfactory) sufficiently confirms the family tradition that 'Isā Khān only obtained his titles after the struggle with Mān Singh.

मदकार शिखुड इह्रा शं

? (दसमनदी कि) मन हीज़ाब

१००२

"The high-born Governor 'Isā Khān on the *Masnad* in the year of the Hijra 1002 (= 1593 A.D.)."

The inscription measures $3\frac{1}{2}$ " by 2."

The gun differs widely in appearance from the previous cannon as besides being polygonal in shape, the barrel and socket are ornamented by bands throughout their length, while near the muzzle the gun is decorated by longitudinal ridges, 4 inches long. The diameter of the bore is $1\frac{1}{8}$ ", and the length of the gun is 3' 11". Its weight is 1 maund $2\frac{1}{2}$ seers.

VI. A similar gun to No. V but stouter, and with a round, instead of polygonal barrel. The length of the gun is the same in both cases, but the bore measures $1\frac{1}{4}$ inches, and the weight of the gun is 1 maund 7 seers. The inscriptions are as follows :—

(a) At the top, just in front of the backsight, occur the figures ४ + १२० (? 4 + 126), while near the foresight, between the first two bands, are found the figures ११०, i.e., 1 maund 23 seers.

(b) Below, midway between the breech and trunnions, occurs the lettering

سعا يا ر
عبرز

What this inscription means is not clear.¹

Further down the gun, just past the trunnions, are also found some doubtful figures (faintly visible in the plate). These somewhat resemble in form the English figures 3 1 9—1, though the loop of the 9 is incomplete.

VII. A plain gun, devoid both of ornamentation and inscription. Its length is 4' 6", and the diameter of its bore 1½". The weight of the gun is 1 maund 30 seers.

Addenda.

Little trace now remains of the fort at Egāro Sindhu (एगार सिन्धु, the junction of 11 streams) except a few mounds which indicate the lines of fortification. The only object of interest is a small three-domed mosque richly decorated within and without with ornamental bricks. Above the central door is an inscription in plaster dating from the time of 'Isā Khān's grandson, Ma'sūm Khān.

As the letters of the inscription are rapidly peeling off under the influence of the weather, I take the opportunity of recording it here.

لا اله الا الله محمد رسول الله - قال الله تعالى انما يعمر مساجد الله
من آمن بالله واليوم الآخر - وقال النبي عليه السلام من بني مسجدا بني الله
له ستين بيتا في الجنة - سر انجام تعمیر ... بتوفیق حق سبحانه تعالی -
باعتماد سعیدی ابن شیخ شیرو در عهد سلطنت تاج فخر سلطین ...
[صاحب] قران ثانی شاه جهان بادشاه غازی در شهر ربیع الاول سنه
۱۰۶۲ هجری *

"There is no God but Allāh! Muhammad is the prophet of Allāh! Saith Almighty God, "Verily he builds mosque."

¹ M. Tabārakullāh, late Maulvi of the Dacca Madrasah, to whom the inscription was shown, suggests *یا سقا*, "O Concealer (of my sins)." and *یا عزیز*, "O Beloved," two of the names of Allah. Apart from the unlikelihood of such an inscription on a weapon of war, there is no sign of the *یا* in the second line, and the first two curves of the *س* in the first line are very doubtful. The dots of the *یا* in the first line are also not certain. (15-8-09)

for Allāh who believes in Allāh and the last day.” Saith the Prophet,—Peace be on him ! “ He who builds a mosque, Allāh will build for him sixty houses in Paradise.”

“The completion of the building (is) by the help of God the Holy and Almighty. [This mosque was erected] through the exertion of Sa’dī son of *Shāikh Shīrū* in the reign of the Crown of the Glory of Sultans, the second [*Sāhib-i-*] *Qirān*, *Pādshāh Ghāzī Shāh Jahān*, in the month *Rabī‘u-l-Āwwal*, in the year 1062 A.H.”

The few words that are missing are those which fall at the beginning or end of the last three lines, where a large portion of the plaster has fallen off. The area covered by the inscription measures 1 ft. 6 inches by 1 ft. 10½ inches. The local people can say nothing about the builder of the mosque, but his grave is found a few paces off to the south-east.

Soon after this paper was read before the Society I was also able to obtain, through the efforts of M. Tasadduq Ahmad, Deputy Inspector of Schools, Narainganj, a verified rubbing of another inscription relating to the *Dīwān* family. This is the one engraved on a basalt slab over the main entrance of a large three-domed mosque at *Parūlia* in the *Dacca* District, a place which was formerly on the main stream of the *Brahmaputra*, when this river traversed the country between the present courses of the *Lākhyā* and *Meghnā*. *Parūlia* is 3 miles in a straight line from *Pulāsh Hāt* on the *Lākhyā*, and 5 from *Narsinghdī* on the *Meghnā*, and the mosque is built on the western bank of the depression that marks the old course of the river *Brahmaputra*. A little to the N.-W. is the brick mausoleum containing the tombs of *Sharif Khān* and his nameless wife.

The inscription, which measures 2’ 6” by 1’ 1’, runs as follows :—

يا فتاح لا اله الا الله محمد رسول الله يا فتاح

—سوده زينت بنت ناصر زوجة ديوان شريف

مسجد عالي بذا چون گنبد اخضر ظريف

سال تاريخش بگفتا هاتف از روی شمار

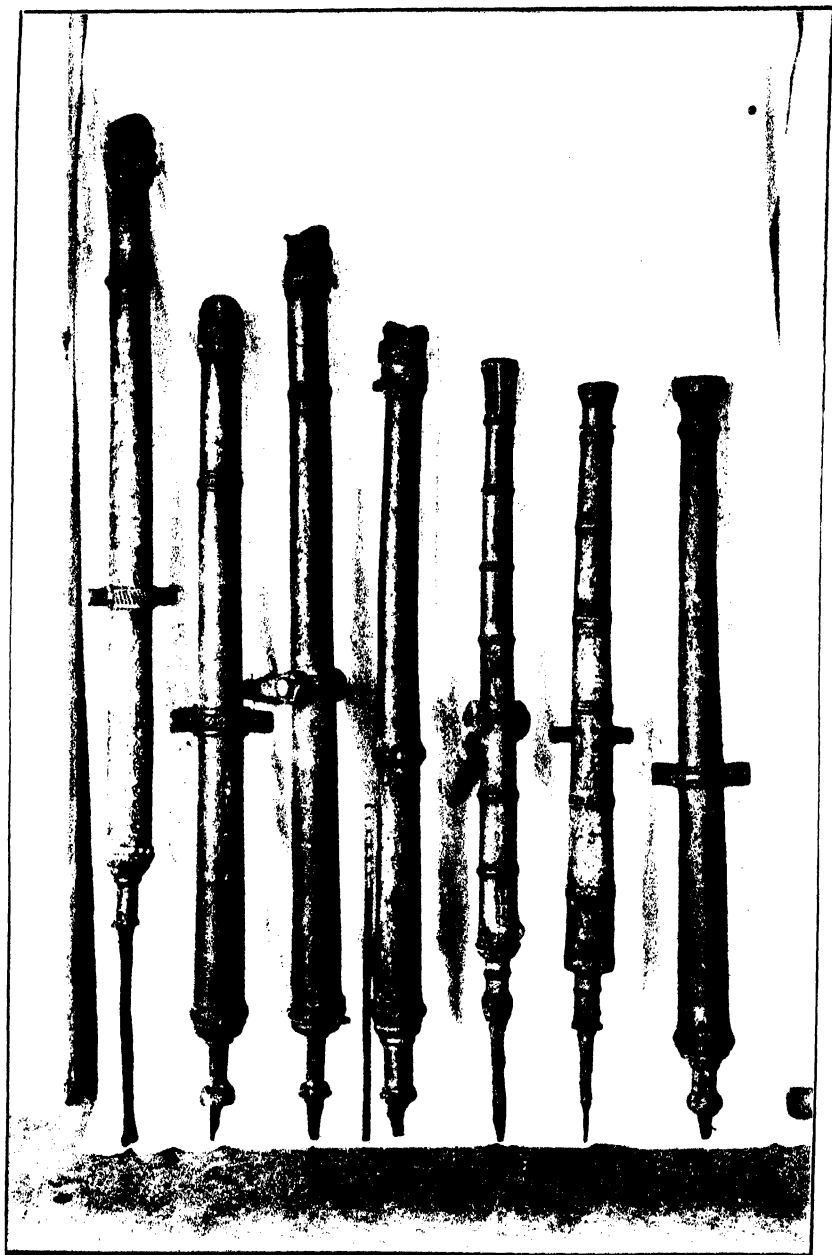
يكهزار و يكصد و بيست و شش از هجر النظيف

‘ O Opener ! ’ The Kalimah “ O Opener ! ” (*i.e.*, Solver of) Difficulties.)

“ Adorned by the daughter of *Nāsir*, the wife of *Dīwān Sharif*, (This) great mosque was built like the graceful blue dome (of the sky). *Hātif* [*i.e.*, the angel of the unseen world] spoke the year of its date from calculation, Eleven Hundred and twenty-six of the holy *Hijra*.”

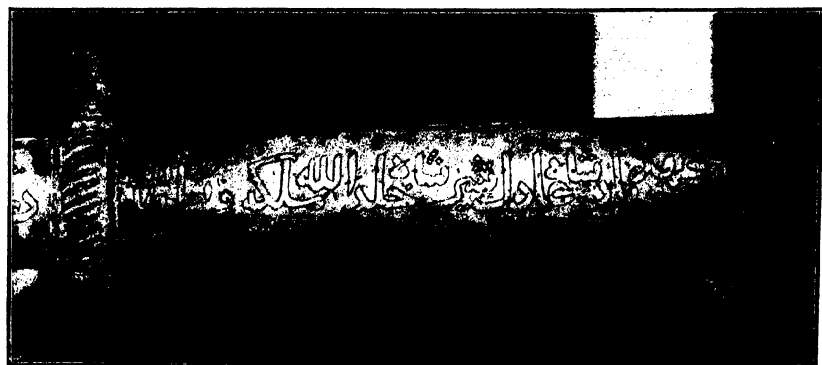
From page 17 of the *Masnad Ali Itihās* (the history of the

family previously referred to) we learn that the lady was the daughter of one of the Diwāns of Sarail in Tippera, and that Sharif Khān and his wife had only one child, named Fāṭimah. This girl was married to Haibat Khān, who was fourth in descent from 'Isā Khān, through his younger son Muḥammad, and on the death of her parents the parganahs of Maheswārdī, Singhadā and Darzī Bāzū passed into the possession of the Haibatnagar branch of the family. Parūlia is still owned by the Haibatnagar Zemindars, but no member of the family resides there. From the fact, however, that the place is marked on the 1" to the mile map as Dīwān Khudā Niwāz Khān's House it appears likely that it was still a family seat in the middle of the last century, when the Survey map was made. Dīwān Khudā Niwāz Khān was a great-great-great-grandson of Haibat Khān and according to the *Itihās* died in 1266 B.S. (=1859 A.D.) at Dacca. The only respectable inhabitants of Parūlia at present are some Brahmīns who probably owe their lands to the generosity of some Dīwān. Though strict Muḥammadans, the family have ever shown by their lavish gifts to Brahmīns that they venerate the memory of their Hindu ancestor, Kālīdās Gajdānī.



II III IV V VI V

CANNON OF ISĀ KHĀN.



CANNON OF SHER SHĀH (*of Pl. XXV, No. 1*).

[illegible][illegible]

INSCRIPTION ON ISĀ KHĀN'S CANNON. No. V, Pl. XXV.

x1.

From the Journal and Proceedings, Asiatic Society of Bengal
(New Series), Vol. VI, No. 4, 1910.

**Contributions to the History and Ethnology of North-
Eastern India.—I.**

By H. E. STAPLETON, B.A., B.Sc.

12. Contributions to the History and Ethnology of North-Eastern India—I.

By H. E. STAPLETON, B.A. B.Sc., *Inspector of Schools, Dacca Division, and Honorary Secretary to the Coin Committee, Eastern Bengal and Assam.*

A.—THE ANTIQUITY OF DACCA.

At the recent 125th Anniversary meeting of the Society, the writer exhibited a rubbing of a mosque inscription from Dacca town, dated in the year 863 A.H. (A.D. 1459), as an indication that Dacca is considerably older than the date of its reputed foundation by Islām Khān in A.D. 1608. Since then an interesting find of coins of a Gupta type has come to light which lends a certain amount of additional support to the suggestion that Dacca is a place of considerable antiquity. The town itself stands at the southernmost point of the raised land occupying the centre of Eastern Bengal, and the shrine of its patron goddess, Dhākeswari, is situated on the highest ground at the western side of the town, half a mile distant from the river Būri Ganga. A mile away to the north-west is the Pil-khāna, the former headquarters of the Kheddah Department, and just beyond this (still to the north-west) we come to a large stretch of arable land which, though now split up into fields, continues to bear the name of *Nawāb Rashīd Khān ka Bagicha*.¹ An old tank, breached at the southern end, lies close to the road leading from the Pil-khāna, and it was here, 100 yards to the south

¹ The former owner of this garden seems to have been the Rashīd Khān who was appointed Faujdār of Kāmrup by Aurangzeb in 1662 (Blochmann, *Koch Bihār and Asām, J.A.S.B.*, 1872, pp. 92 and 96). He accepted the post unwillingly and resigned after holding it for 3 or 4 years, being succeeded by Saiyid Firūz Khān who was captured and killed by the Assamese in 1667. During Shāista Khān's expedition in 1665 for the conquest of Chittagong, Rashīd Khān's brother, 'Abdul Karīm, was placed in charge of the captured island of Sondip ('*Ālāmgīr-nāmah*, quoted by 'Abdu-s-Salām on p. 230 of his translation of the *Riyāzu-s-Salāṭīn*). Later, in 1669, Rashīd Khān accompanied Rājā Rām Singh in his expedition to recover Gauhati from the Assamese, but he quarrelled with Rām Singh and was ordered out of the camp (Gait, *History*, p. 149). The last reference to him occurs in the *Ma'āziri-i-Ālāmgīri*, when he is found reporting (apparently from Dacca) on the expenditure incurred in connexion with the "conquest" of Gauhati in 1679 (Blochmann, *op. cit.*, p. 99). Rashīd Khān is nowhere recorded to have been given the title of Nawāb, but it is possible he may have obtained it in connexion with this temporary re-occupation of Gauhati during the Viceroyalty of Prince Muḥammad 'Āzam (1678-1679).

west of the tank and within a stone's throw of the road, that the first coin figured in the annexed Plate XXII was picked up three years ago, the finder being a son of one Jamadār 'Alī, a ryot of Munshī Akbar of Maneswar, the large village lying on the old river bank to the west and north-west of the Pīl-khāna. According to another son of Jamadār 'Alī whom I saw when enquiring about the find, there was a dispute at the time of its discovery as to whether or not it was brass, and on the coin being taken to Bābu Monohar De, a local talukdar and goldsmith, it was declared to be gold and purchased by him for Rs. 8. Last March Bābu Mohini Mohan Basu, Headmaster of the Mymensingh Zilla School, happened to be visiting this man, and having been shewn the coin, was informed that others were obtainable at a neighbouring *poddar's*. Being interested, he asked that one should be obtained for him, with the result that coin No. 2 in Plate XXII was purchased for Rs. 9 and sent him shortly afterwards. The discovery of the first coin in the earth close to Nawāb Rashīd Khān's tank is certain, having been verified by personal enquiry from the villagers concerned, and it was also ascertained from the *poddar* who sold the second coin to the Headmaster, through whom information of the find first reached me, that he had obtained it, as well as another, a few months back, from one Ghulām Nabī, a Newāri (নেওয়ারী), or dealer in old jewelry. Ghulām Nabī could not be found as he is said to be absent from Dacca in connexion with his business for most of the year, but the *poddar* informed me that he had seen several other coins of the same sort in his possession.

No. 1.—Gold (apparently cast). Weight 87·6 grains. Size ·80 inch.

Obverse:—Typical Gupta king, facing right, his left hand holding a bow, and right extended over the *garūḍa* standard, grasping an arrow. The appearance of the figure on the coin resembles that of Fig. 12, Plate XV (a coin of Chandragupta II) in Mr. Vincent Smith's Indian Museum catalogue of Gupta Coins, while the bow is identical with that shewn on a coin of Samudragupta (*cf.* Mr. Vincent Smith's paper in the *J.A.S.B.* for 1884, Pl. II, Fig 6). There is, however, no halo round the head of the king nor visible lettering on the field, which is surrounded by a symmetrical arrangement of dots and dashes. The edge of the coin has been clipped.

Reverse:—Within a circle surrounded by a circle of dots, a standing Queen or Goddess, looking to the left. Behind her lines suggestive of flowing hair, while in front appear characters suggestive of Gupta letters.

Both the appearance as well as the weight (roughly half a *tola*) at first led the writer to believe that the coin was a forgery, though, from the clearness of the bow, the maker must evidently

have had a genuine Gupta coin as a model. The type seems altogether new, as nothing approximating to the reverse can be found in any paper dealing with Gupta coinage; but the rubbing of an almost identical coin (found in the possession of a ryot at Kotwālipārā) was sent me last year by Bābu Kālīpada Maitra, Assistant Settlement officer, Farīdpūr. Subsequent attempts to purchase this Kotwālipārā coin have proved unsuccessful, but as it was found in company of a Skandagupta coin with very similar type of figure of king,¹ it appears likely to be an example of a new type of Skandagupta's coinage.

No. 2.—Gold (probably struck from a die). Weight 88·3 grs. Size .88 inch.

Obverse:—Similar to the first coin, except that a horse, standing in front of a small altar, occurs under the king's left arm, while between the king's head and the head of the *garūḍa* standard is the word *Srī* in Gupta characters (cf. *I.M.C.*, Pl. XV, No. 12, for similar letters). The bow is also smaller than in No. 1.

Reverse:—Practically the same as the reverse of No. 1, but with more detail. The edge of the coin has evidently been mechanically waved after the coin has been struck, a hollow on the obverse corresponding with a dot on the reverse. Both in this coin, as well as in No. 1, the figure on the reverse is at 90° to that on the obverse.

This second coin is evidently based upon one of a similar type to the first. It is, however, more interesting as pointing to the existence of another series of coins commemorating an *Asvamedha* (Horse sacrifice). If the identification of the first coin with one of Skandagupta's be correct, this may perhaps be the *Asvamedha* celebrated by Kumāragupta I in which his son Skandagupta may well have taken a part.

Unless these coins be genuine, it is difficult to suggest any hypothesis to account for the discovery of coin No. 1, except that the manufacture of these coins from genuine Gupta coins has been going on for some time in the vicinity of Dacca. Moreover in the absence of the *Newārī* who disposed of coin No. 2 to the *poddar*, it is impossible to say for certain whether the coins actually originate from Dacca. There is, however, nothing inherently improbable in believing the latter to be the case, as besides the Kotwālipārā find mentioned above, Gupta coins belonging to several kings have also been discovered at Muḥammadpūr in the north-east of Jessore (*J.A.S.B.*, 1852, p. 401), while the well-known Allāhābād inscription of Samūdra-

¹ A cast of this Skandagupta coin was shown at the Anniversary meeting. It resembles *I.M.C.*, No. 8, Plate XVI. From the discovery during a visit to Kotwālipārā on 30/1/10 of three more coins similar to No. 1, I am now inclined to regard them as Bengal coins of a somewhat later date than Skandagupta. On one coin a clear π appears on the obverse under the king's left arm.

gupta records his suzerainty over the frontier kings of *Samātāta*, *Davāka*, *Kāmarūpa* and *Nēpāla* (Fleet, *Corpus Inscript. Ind.*, Vol. III, page 14). Mr. Vincent Smith assigns *Davāka* to the area now covered by the present Rājshāhī Division, but he appears to have overlooked the fact that until 100 years ago the Brahmaputra ran through Mymensingh and that there was no physical obstacle between what is now Pabna and Bogra, and the present district of Dacca. *Davāka* would therefore seem to be the land lying between the Brahmaputra—from the point where it turns the Gāro Hills, down to the old junction of the Meghnā with the Ganges, north of the island of Dakhīn Shābāzpur—and the Ganges from Gaur to the same junction (*vide* Rennell's map No. IX, from which Mr. Vincent Smith's map facing page 270 of his *Early History of India* should be corrected). If, too, Mr. Vincent Smith's identification of the famous Vikramāditya of Ujjain with Chandragupta II be correct, the district of Vikrampur, immediately to the south of Dacca, probably owes its name to this king, who records on the iron pillar of Dihlī that he warred in the *Vanga* countries (*op. cit.*, 2nd Ed., p. 275). Mr. Vincent Smith's map also seems to need correction as regards the situation of *Vanga*, the boundary of which has long been the Karatoya on the west, Ganges on the south, the Meghnā on the east, and the Khasi Hills on the north (*vide* Cunningham, *Archæological Report* XV, page 145). In fact *Vanga* may be practically regarded as an alternative name for *Davāka*.

In this connexion, I take the opportunity to place on permanent record the two earliest mosque inscriptions that occur in Dacca town. The first is that found on a small slab of stone above the door of a mosque at Nārāyandia, the north-eastern suburb of Dacca. The mosque is a very small one and of modern appearance, but from its position at the extreme south-east point of the raised land on which the main city of Dacca stands, the stone may possibly be in its original position. Just to the south runs the *khāl*, which passes through Dacca and marks the former channel of the Burigangā when this river ran into the Lākhyā instead of the Dhaleswarī, while beyond the *khāl* lies the *char* (island) now occupied by the *mahallas* of Islāmpūr, Patuātulī, Bānglā Bazār, Farāshganj, Sūtrāpūr, Ikrāmpūr, Shāh Ujijālnagar and Ruknpūr, on which the town of *Bāngalā*, visited by Vertomannus in 1503, seems to have been situated. (Taylor, *Topography and Statistics of Dacca*, p. 92.)

بسم الله الرحمن الرحيم
لا اله الا الله محمد رسول الله
شد مزین ببانگ حی فلاح
مسجد این غریب لیل و صبح
مسماة بغت بینت دختر مرحمت

The Basmalah. The Kalimah.

“Adorned by the sound of Hayya Falah¹
At night and morning is the mosque of this humble person :
(Erected by) Musammāt Bakht Bīnat, daughter of Mar-
hamat.

In the year 861 (= 1457 A.D.).”

(Length of the stone 1' 0 $\frac{3}{4}$ " ; height 8 $\frac{1}{4}$ ".)

The inscription is somewhat curious as being in Persian, and for its omission of any reference to the reigning king. As pointed out by Khān Bahādur Saiyid Aulad Hasan (whose reading of the inscription in his *Notes on the Antiquities of Dacca* first drew my attention to it—*vide* p. 28), the name of the lady shows that she belonged to the lower class of society.

The second inscription, two years later in date, is the one referred to at the beginning of this paper. As noted by Khān Bahādur Saiyid Aulad Hasan (*op. cit.*, p. 34) this inscription, which is now in the Record room of the Dacca Collectorate, came from an old mosque in Nāswalla Gully, a street in the quarter of the town of Dacca known as Gird-i Qila' and not from the adjoining quarter of Churihāttā as reported by Dr. Wise. Owing to a defective rubbing, Dr. Blochmann was unable to give a full reading in his *Notes on Arabic and Persian Inscriptions*, (J.A.S.B., 1872, page 107), but from a recent photo, reproduced in Plate XXIV, it will be seen that this important inscription runs as follows :

قال الله تعالى وان المساجد لله فلا تدعوا مع الله احدا استحكم هذا
الباب وبنى في ايام خلافة الخليفة المستعان ناصر الدنيا والدين ابوالمظفر
معمود شاه السلطان خلد ملکه السبعان المخاطب بخطاب خواجه جهان
صانه عن الافات الرحمن في حد اقليم مبارکباد - عصمها² الله الى يوم

¹ More properly *حي على الفلاح* (Come to Safety), a sentence in the *Azān* (call to prayer).

² I am indebted to Dr. Ross, Philological Secretary of the Society, for the reading of this word.

التناد و كان ذلك فى العشرين من شعبان سنة ثلث وستين وثمانمائة من
هجرة سنن^١ صلى الله عليه واله اجمعين *

“Saith Almighty God; Verily mosques belong to Allāh !
Do not worship any one save Allāh !

“This gate was firmly constructed and built in the days of the reign of the Khalifah of Him whose aid is sought (by men) Nāṣiru-d-Duniya wa-d-Dīn Abu-l-Muzaffar Maḥmūd Shāh, the King—May Allāh perpetuate his rule!—by one entitled Khawājah Jahān—May the Merciful protect him from (all) evils!—in the frontier territory of Mubārakābād—May Allāh preserve it to the Day of Judgment ! And this was on the 20th of Sha‘bān in the year 863 of the years of the Hijra (of the Prophet)—May the peace of God be on him and on all his family !”

Dr. Wise, who was probably misled by Stewart's assertion that Dacca is a modern city, suggested to Dr. Blochmann that the slab on which the inscription is found “has been removed from some other older mosque and city to Dhākā,” but from the position of the mosque on high land close to the Dhākeswarī shrine and next to the site of the old fort erected by Ibrāhīm Khān Fath Jang, the third Mughul Governor of Bengal, about the year 1620 A.D.,² as well as the facts stated earlier in this paper, there seems no reason to doubt that the inscription has always belonged to the Gird-i Qila mosque. The original building has now disappeared, the roof having collapsed in 1902 as the combined result of being struck by lightning and shaken by the 1897 earthquake, but the local people are now rebuilding another mosque on the foundations of the old one. According to Khān Bahādur Saiyid Aulad Hasan (*op. cit.*, p. 34) the original building measured inside 27' × 16½' and the walls were 4' thick. The slab (now broken in two pieces) is of slate and has the following dimensions :—

Length	..	4' 9"	Length of actual inscription	4' 6½"
Height	..	1' 1½"	Height of ditto	11¼"
Thickness	..	5" at top decreasing to 4½" at the bottom.		

The stone originally belonged to some even older building, as the top is still covered with sculptured floral designs.

¹ As pointed out by Dr. Ross this is unlikely though apparently سنن is the reading of the inscription. Mr. Azo, to whom a photo of the slab was subsequently shown, suggests that just as in the middle of the first line the individual letters of the words الباب و ندى ني are fused together, so it might be possible here to read من هجرة اشرف النبيين
“(in the year 863) of the Hijra of the Noblest of the Prophets.”

² Aulad Hasan, *op. cit.*, p. 17.

The Mubārakābād referred to in the inscription probably takes us back to the time of the rule of independent Kings in Eastern Bengal. After the defeat and death of the rebellious Viceroy Bahādur Shāh in 731 A.H., the Emperor Muḥammad Ibn Tughluq returned to Dihlī, leaving Bahrām Khān in his old post of Governor of Sunārgānw and Qadr Khān as Governor of Lakhnautī. Bahrām Khān died in 739 A.H., whereupon his armour-bearer, Fakhrū-d-Dīn Mubārak, seized Sunārgānw. Muḥammad Ibn Tughluq ordered Qadr Khān to expel the rebel, and Fakhrū-d-Dīn being defeated, “fled and concealed himself in the forests”¹ but soon after succeeded in inducing the soldiers left behind in Sunārgānw to kill Qadr Khān under promise of distributing among them the treasure which Qadr Khān had collected and was on the point of forwarding to Dihlī. This appears to have happened in 741 A.H., and Fakhrū-d-Dīn ruled continuously as the first independent sovereign of Sunārgānw until 750. A glance at Rennell’s map No. XII will show that there is strong likelihood of Fakhrū-d-Dīn having retreated from Qadr Khān into the Lākhyā River, from which there was easy access to the maze of waterways round Dacca by means of the Tangi and Turag rivers or the Dolaiganj creek, and his success is also not unlikely to have been commemorated by calling his place of refuge after his own name. From the phrase “Frontier Territory” it would appear probable that the district of which Mubārakābād was the chief town stretched S.E. to the Meghnā and (apart from any thing north of Dacca) included all old Vikrampūr, *i.e.*, those portions of the existing districts of Dacca and Faridpūr, south of the Dhaleswarī, which lay in the acute angle between the old course of the Ganges, and the Meghnā on the east (*vide* Rennell’s maps Nos. IX and XVII). A relic of the *Iqlīm* seems to be the *Mubārak Ujjiyāl* mentioned in the *Ain* as a parganah of Sirkār Bāzūhā (Vol. II, Jarrett’s trans., p. 138). This still exists as a large parganah of the Dacca district, comprising much of the land south-west and west of Dacca town, between the Padma on the south and the Dhaleswarī on the north.

No coins minted in Mubārakābād have yet come to light, the series of Fakhrū-d-Dīn’s coins from 741—750 mentioned by Thomas (*Chronicles*, p. 263) being all from Sunārgānw.

Blochmann’s suggestion (*loc. cit.*, p. 108) that Khwājah Jahān is the same person as Ulugh Khān Jahān, the founder of Khalīfatābād, the modern Bāgherhāt in Khulnā, is untenable, as in the first place, a striking change in name is not likely to have taken place in the interval, June to October, 1459, nor is it likely for any one to have travelled from Dacca to

¹ Stewart. *History of Bengal* (Sect. III, under the year A.D. 1338).

southern Jessore in these three months, as the crossing of the Ganges is dangerous during the Rains. The Dacca inscription, however, enables the origin of the name “*Khalifatābād*” to be explained, i.e., it was given by *Khān Jahān* to his Sunderban settlement in honour of the reigning *Nāṣiru-d-Dīn Maḥmūd*, the king who had granted him a *sanad* to reclaim land, and who alone amongst Bengal kings styled himself “Vicar of

God,” in this case *خليفة المستعان* or more simply *خليفة الله* as in his coin of which a figure is given by Blochmann on page 295 of his *Contributions to the Geography and History of Bengal* (*J.A.S.B.*, 1874). *Khalifatābād* came into prominence as a mint town in the time of the Husaini kings, owing, it appears, to ‘*Alā’u-d-Dīn Husain Shāh*’ having originally settled at ‘*Alāipūr*’ near *Khulnā* to the north of Haveli *Khalifatābād* (Blochmann, *Contributions*, I, 1873, p. 227, note). His son *Nāṣiru-d-Dīn Naṣrat Shāh* issued coins there in the lifetime of his father, and the mint continued to issue coins until the end of the Husaini dynasty with *Ghiyāṣu-d-Dīn Maḥmūd II* in 945 A.H. (1538 A.D.; cf. Nelson Wright’s *I.M.C.*, Bengal coins, Nos. 211, 212 and 225.)¹

A full account of all that is known about *Khān Jahān*, the earliest Commissioner of the Sunderbans of whom we have any knowledge, will be found in Chapter III of Westland’s *Jessore*, published by the Bengal Secretariat Press in 1871.

B.—THE EARLY GOLD COINAGE OF THE DHILĪ EMPERORS.

According to the most recent authority (Mr. Nelson Wright, in his Indian Museum Catalogue of the Coins of the Dihlī Sultans, p. 7), the earliest ruler to introduce gold *tankas* of the same pattern and weight as the silver *tanka* of 175 grains was *Nāṣiru-d-Dīn Maḥmūd I* (644—664 A.H.). A find of gold coins which has been slowly passed during the last year into the shops of Calcutta *poddars* enables us, however, to antedate this coinage by at least one reign. Both the coins which will now be described were purchased in Calcutta, the place of origin being stated in the case of the first coin to be *Tārkeswar*, the well-known shrine, a few miles west of Chandernagar. Little reliance, however, can be placed on the statement.

¹ Cunningham (*Report XV*, p. 46) states that he had a coin of *Nāṣiru-d-Dīn Maḥmūd I* in his possession minted at Hazrat *Khalīfat-ābād* in 846 A.H. If his reading was correct it shows that *Maḥmūd I* resided and minted coins in the Sunderbans as early as 1442 A.D., and that *Khalīfatābād* was probably the stronghold to which the descendants of *Ilyās Shāh* retreated after *Rājā Ganesh*’s usurpation and from which *Maḥmūd*’s successful rebellion originated.

No. 3.—‘ALĀ’U-D-DĪN MA’SŪD SHĪĀH.

Gold *Tanka* (unique). Weight 166·4 grains. Size ‘92”.

Obverse :—In double square within circle, three dots in each segment—

- (1) في عهد الامام
- (2) المستنصر بالله امير
- (3) المومنين لله

[No margin.]

Reverse :—Area enclosed in double square, with scroll work in segments—

- (1) السلطان الاعظم
- (2) علا الدنيا والدين ابو
- (3) شاه سلطان

المظفر مسعود بن

[No margin.]

This coin closely follows in all its details the Gauhati silver coin of ‘Alā’u-d-Dīn described by Hoernle in the *Journal* for 1881 (pp. 58 and 59), and catalogued as No. 119 in Wright’s *I.M.C.*, but the letters are much smaller and the engraving better, e.g., the س of the سلطان is properly represented with the three up strokes. As regards date, the Khalif Al-Mustansir having died in the middle of 640 while ‘Alā’u-d-Dīn ascended the throne in 639, “it would seem to be limited to one of these two years.” Hoernle, however, subsequently suggests (*loc. cit.*, p. 64) that this was the standard die used throughout ‘Alā’u-d-Dīn’s reign. The mint is probably Dihlī.

No. 4.—NĀSĪRU-D-DĪN MAḤMŪD SHĪĀH.

Gold *Tanka* (unique). Weight 166·6 grains. Size 1·0”.

Obverse :—In double square within circle, four dots in segments—

- (1) في عهد الامام
- (2) المستنصر بالله امير
- (3) المومنين لله

[No margin.]

Reverse :—In double square, with traces of ornamental scroll in segments—

- (1) السلطان الاعظم
- (2) ناصر الدنيا والدين
- (3) ابو المظفر محمود
- (4) شاه بن سلطان

[No margin.]

The coin is almost an exact copy of the Gauhati silver coin of Nāsīru-d-Dīn described by Hoernle (*loc. cit.*, p. 59), and catalogued as No. 134 of the new *I.M.C.*; while there is also a

striking similarity between this gold *tanka* and that of 'Alā'u-d-Dīn Mas'ūd previously described. The mint is probably Dihli and the date 644 A.H. (*idem*, p. 64). The gold coin given as No. 133 of the *I.M.C.* is altogether different in type as the areas are round and there is a marginal inscription on both sides.

Attention may also be drawn in connexion with these coins to the fact that the Gauhati find lends considerable corroboration to the statement of the *Ṭabaqāt-i-Nāsirī* regarding the invasion of Kāmṛūp by Ikhtiyāru-d-Dīn Yuzbak Tughril Khān, the Governor who assumed independence about the year 652 A.H. with the title Sulṭān Mughīṣu-d-Dīn Yuzbak, and who was killed in Kāmṛūp in 655. The find may be regarded as a relic of the expedition, either deposited by a Musalmān soldier in Gauhati or, more probably, loot captured from the Musalmāns by the then inhabitants of Gauhati in one of the engagements that led to Mughīṣu-d-Dīn's defeat and death. Mr. Gait in his *History of Assam* (p. 35) confuses this Tughril Khān, the second Bengal Governor of this name, with the third Tughril, who also, on declaring himself independent, assumed the title Mughīṣu-d-Dīn and who was killed by the soldiers of the Emperor Balban in Tippera (c. 681 A.H.); *vide* Thomas, *Initial Coinage of Bengal*, 1866, p. 34.

C.—THE FIRST BENGAL COINAGE OF SHER SHĀH.

In the June number of the *Proceedings* for 1898, pp. 169 to 173, the late Dr. Bloch described a find of 317 coins (chiefly of Husainī dynasty) which was made in December, 1897, by one Girish Chandra Aich Ray, a talukdar of Jasodal, a village 2 miles east of the Sub-Divisional headquarters of Kishoreganj in the Mymensingh District. Besides two strange coins, which have not yet been satisfactorily read (*vide I.M.C.*, Bengal coins, Nos. 239 and 240), the most interesting coins in the find were three of the Emperor Humāyūn Shāh, probably minted at Gaur, while he was in residence there in A.H. 945 (1538 A.D.) after Sher Khān had retreated to Upper India (*vide* Wright's *I.M.C.*, Vol. III, Mughal Emperors, Humāyūn, Nos. 21 and 22 and Plate i). Only a small proportion of this find seems to have been recovered by the Collector, as coins which evidently belong to the same find have been on sale ever since in the Kishoreganj Sub-Division. Most of these coins are similar to those described by Dr. Bloch, but among the ones I have been able to purchase are two typical Bengal coins minted in the name of Sher Khān after he had defeated Humāyūn at Chaupā in 946 A.H. and assumed his new title of Sher Shāh. In the same year he also recaptured Gaur from Humāyūn's governor Jahāngir Quli Beg.

No. 5.—Silver. Size .83" and .85".

Obverse :—(In square area) —

- (1) لا اله الا الله
- (2) محمد رسول الله
- (3) السلطان العادل

Reverse :—(In square area) —

- (1) شاه
- (2) شير
- (3) السلطان خلد
- (4) الله ملكه ١٤٩٩
- (5) खौ से र सा हौ

Margins missing save for traces of *عش* at bottom of best coin (in the second specimen there is also trace of *علي* in the left margin).

Margins missing, but there is a slight indication on the right of the *ف* of *فريد*.

The Devanāgarī characters are very crudely represented, and the date (probably 946) is written backwards. The weight of the coin figured (Plate XXII, fig. 5) is 164·8 grains, while the second specimen (which, however, is much mutilated by shroff-marks, especially one deep cut across the *Kalimah*) only weighs 154·4 grains. As the coins upon which these Bengal coins are modelled (Nos. 659 and 660, *I.M.C.*—Sultāns of Dihlī—*Sher Shāh*,—946) weigh 171 grains, and similar coins minted in Fathābād (Farīdpūr) 3 years later weigh 173 grains, it would seem that the coins now described were issued at Gaur by *Khizr Khān*, the Governor who was appointed in 946 by *Sher Shāh* to rule over Bengal, and that in addition to the other reasons stated¹ for his replacement in 948 by *Qāzi Fāzilāt*, peculation in the coinage may also have been included.

The following notes may be added regarding the Jasodal find-spot. The coins were discovered by Bābu Girish Chandra (Aich) Ray in a decorated porcelain pot about 5 feet under the ground, while levelling a mound in the precincts of the ruined home of his ancestor Rājā Ganik Chandra (गनिक चन्द्र). The Aichs (आइच) state that they are Kayasths, who came from Rād, and are descended from one Bhuban Aich, who settled in the Madhyadesa—perhaps Gaur—nine generations before the time of Rājā Ganik Chandra. The first of the family to move to Mymensingh was Devībar Aich, 6th in descent from Bhuban and 14 generations from Girish Bābu (the finder of the coins) and the village of Jasodal owes its name to Devībar's son, Jasomanta Khān, one of 3 brothers who all had the title Khān.

¹ 'Abdu-s-Salām's trans. of the *Riyāz*, p. 145.

Rājā Gaṇik Chandra *alias* Govardhan, son of Govinda Hazrā and great-grandson of Devībar Aich, is said to have received his title from 'Alā'u-d-Dīn Husain Shāh or Nasrat Shāh, being at the same time given the parganahs of Hazrādī and Husain-shāhī in the present Mymensingh district. These two parganahs were included among the 22 subsequently conferred by Akbar on 'Isā Khān (*vide* my recent *Note on Seven Sixteenth Century Cannon*, *J.A.S.B.*, 1909, pp. 370 and 372); and the story goes on to say that when 'Isā Khān came back from Dihlī with the *firmān* granting him these 22 parganahs, much fighting ensued between the old and new owners, one battle being fought at a village called Kakūrdia, between Jasodal and Jangalbārī, the place from which 'Isā Khān had previously expelled a Koch Rājā called Lakshman, and where he had made his home. 'Isā Khān, however, was unable to defeat Rājā Gaṇik Chandra and finally had recourse to the same stratagem as that used by Husain Shāh in capturing Kāmatāpūr in 1494 (*vide* later in this paper), as well as by Sher Shāh at Fort Rohtas in 1538 (= 945 A.H.), while Humāyūn idled at Gaur. 'Isā Khān suggested that fighting should cease, and that as a sign of amity between the two families, his ladies should visit the zenana of the Rājā. Instead of women, however, the palanquins were filled with armed men, who, as soon as they were safely inside the walls of the Rājā's house, leapt out and killed him. The Rājā is said to have been worshipping at the time in his private temple of Bhairavī (Kālī), and it was near the ruins of this temple that the coins were found. According to the *Āin*, 'Isā Khān is said to have returned from an expedition to Kuch Bihār in 992 A.H. (1584 A.D.).¹ If this can be interpreted as including Mymensingh, the greater part of which was then inhabited by Kochs, it is probable that the burial of the treasure and Gaṇik Chandra's tragic death should be assigned to about this date and not to 1003—1004 A.H. when 'Isā Khān returned from Dihlī, after being granted the 22 parganas by Akbar. Local tradition states that 'Isā Khān was already in possession of Jangalbārī in 1002 A.H., and advanced from there with an army of Kochs to fight Mān Singh at Egārosindhu. If, on the other hand, the capture of the Koch fort at Jangalbārī took place before 992 A.H., it is hardly likely that 'Isā Khān would have tolerated for so long the existence of a rival only three miles distant from his own house. The connexion of 'Isā Khān and the Tippera Rāj in 1587 (996 A.H.) referred to in my paper on 'Isā Khān's Cannon (*loc. cit.*, p. 369, note 1), also shows that 'Isā Khān was firmly established in the neighbourhood of south-east Mymensingh, several years before Mān Singh's invasion.

The evidence of the coins themselves points indeed to a still earlier date, as the latest coin belongs to Muhammad Shāh Sūrī (960—964 A.H.), but as Eastern Bengal was for the next 40 years any one's land in which it is doubtful whether Akbar's coinage was current, the Jasodal find might have been buried at a much later date without it containing a single coin of Akbar. On the whole, the evidence can only be said to indicate some date between 965 and 990 A.H. (A.D. 1557—1582) as the time at which the treasure was buried and Rājā Ganik Chandra killed.

From the name of one of the parganahs, as well as the interval of time between 1520, the date of Husain Shāh's death, and 1582, it would appear that the grant of land was made by Husain Shāh's son, Nasrat Shāh, to the Rājā's father, Govinda Hazrā, after whom the Mymensingh parganah Hazrādi seems to be named, and not to the Rājā himself.

Bābu Girish Chandra Ray also possesses a gold coin of Bijay Mānikya, the Rājā of Tippera, mentioned in the *Ain* (Jarrett's trans., II, p. 117), who, according to the *Rājmalā*, reigned from 1535 to 1583; but up to the time of writing, I have only seen a bad rubbing of the coin on which the date is illegible. It is said to be an heirloom and not to have been one of the coins found in 1897.

D.—THE ORIGIN OF THE FULL KOCH COINS AND THEIR RELATION TO THOSE OF THE JAINTIA KINGS.

So far as I am aware no representative collection of Koch coins has yet been catalogued, and only scattered notices have appeared of the full-coins that were issued prior to the introduction of the system of half-coins described by Mr. Gait in his *Note on the Coinage of the Koch Kings* (*J.A.S.B.*, 1895, pp. 237—241). The following list epitomises our knowledge on the subject:—

- I. BISVA SĪMHA—Founder of the Koch dynasty—*Circa* A.D. 1515-1540. No coins known.
- II. NARA NĀRĀYAṆ—*Circa* 1540-1584.
 - (i) Coin described and figured by R. L. Mitra—(*Proc. A.S.B.*, 1856, p. 457). Date 1477 *Sākā* (= A.D. 1555).
No measurements given.
 - (ii) Coin of the same date described by Blochmann (*J.A.S.B.*, 1874, p. 306). This slightly differs from No. (i) in reading "Nara Nārāyanashya" on the obverse instead of "Nara Nārāyaṇa Bhūpālashya," the inscription therefore being of four lines instead of five.
Weight 157.5 grains; exact size not given.

(iii) and (iv) Mr. Gait's two specimens figured as Nos. 1 and 2 in Plate XXIV of his paper on the Koch Coinage. Both are dated 1477 *Sāka*, but no measurements are given. The first is erroneously said to be a reproduction of Blochmann's coin, but it has "Bhūpālasya" inserted after Nārāyaṇ and appears to be one of those belonging to Mr. Gait. Both of Mr. Gait's coins therefore have the same, and not different, readings as he states (*op. cit.*, p. 238).

III. (a) LAKSHMI NĀRĀYAṆ:—1584-1622 (Western Koch kingdom, or Kuch Bihār).

(i) and (ii) Marsden, *Numismata Orientalia Illustrata*, Nos. MCCIII and MCCIV [Plate LII].
Weights: 151 and 152 grains respectively.
Size (from Plate) 1·2".

(iii—v) Mr. Gait notes in the Postscript to his Koch paper (*loc. cit.*, p. 241) that the British Museum possesses in all five full-coins of Lakshmi Nārāyaṇ (including those described by Marsden), all dated 1509 *Sāka* (A.D. 1587).

(vi) Shillong Cabinet. (*Vide* Plate XXII, No. 6). Weight: 152·4 grains. Size: 1·22".

Obverse.

- (1) श्री श्रीम
- (2) लक्ष्मीनाराय
- (3) णम्य शाके
- (4) १५०२

Reverse.

- (1) श्री श्री
- (2) शिव चरण
- (3) कमल मधु
- (4) करम्य

III. (b) RAGHUDEV, 1581—1593. Son of Silarai, Nara Nārāyaṇ's brother and General, and cousin of of Lakshmi Nārāyaṇ. Ruler of the Eastern Koch Kingdom, or Koch Hajo.

(i) *J.A.S.B., Proc.*, May 1895, page 86. Coin dated 1510 *Sāka*. In this notice the *Bhūpālasya* of the 3rd and 4th lines of the obverse is wrongly given as *Pālasya*, an error which is repeated by Mr. Gait on page 238 of his Koch paper previously referred to. No measurements are given; and the coin (like all the Koch coins described from time to time in the *Journal*) has now disappeared from the combined collection in the Indian Museum.

Mr. Gait notes however in his Postscript that

- (ii) the British Museum also possesses an identical coin.
No coins of Raghudev's successors in the Eastern Kingdom are known.

IV. BIR NĀRĀYAṆ, 1622—1627. No coin known. •

V. PRĀṆ NĀRĀYAṆ, 1627—1666. Marsden, *op cit.*,
Nos. MCCV--MCCVII (Plate LII.)

Weights:—148, 146½ and 142 grains respectively.

The first two are both dated 1555 *Sāka* (1633 A.D.) but the date of the third coin is illegible. If the engraving of the coin is a facsimile, the size is 1·25".

This issue of coins seems to contradict the story given in Hunter's *Statistical Account of Kuch Behar* (p. 409) that Lakshmi Nārāyaṇ was allowed to return to his kingdom from Dihlī in 1618 A.D., on condition that he would in future strike coin only in halves; nor can it be accounted for by Prāṇ Nārāyaṇ being then in rebellion, as only five years later we find him accompanying a Muhammadan force as ally up the Brahmaputra against the Āhōms (Gait, *History*, p. 115). No full coin however of any Rājā subsequent to Prāṇ Nārāyaṇ is known, and as the earliest specimens in the Shillong cabinet of the half coins ("Nārāyaṇī Rupees"), described by Mr. Gait, belong to this Rājā, it would appear that Prāṇ Nārāyaṇ was the first to mint such coins.

The coin which served as a model to Nara Nārāyaṇ is that belonging to Husain Shāh of Bengal, of which four specimens ranging in date from A.H. 900—913 (1494—1517 A.D.) are mentioned in the recently published Indian Museum Catalogue (Vol. II, Bengal series). For facility of reference a specimen of the coin (found in the Murshidābād District) from my own cabinet is reproduced as No. 7 of Plate XXII. The relationship of the two coins will also be clearly evident from the following comparison.

	Koch coin No. 6.	Husainī coin No. 7.
Size ..	1.22"	1.28" (the <i>I.M.C.</i> examples range from 1.18"—1.25").
Weight ..	152.4 grains (but <i>vide</i> Nara Nārāyaṇ's coin, No. ii above, for weight of 157.5 grains. As time went on the weight decreased still more— <i>cf.</i> Prān Nārāyaṇ's coins in the British Museum—and it was by the later standards that the weight of the ordinary Koch half-coins was fixed).	164.1 grains (in the <i>I.M.C.</i> examples, the weight ranges from 161.5—164.5 grains).
Appearance.	Identical, a 4-line inscription being enclosed in each case in a double circle with a row of dots between. The reproduction in the Koch coin of one of the groups of three dots from the Husain Shāh coin is specially noticeable. ¹	

To account for this adoption by the Koch kings of the coin belonging to the Muhammadan kings of Bengal, a brief consideration of the conquests of Husain Shāh is necessary. Husain Shāh defeated his predecessor Shamsu-d-Dīn Muẓaffar Shāh either at the end of A.H. 898 (1493 A.D.) or the beginning of 899,² and from the conquest of Bengal he forthwith

¹ The inscription on the Husainī coin runs as follows:—

<i>Obverse.</i>	<i>Reverse.</i>
السلطان العدل علا الدنيا والدين ابوالمظفر حسين شاه	سلطان بن سيد اشرف الحسين خلد ملكه و سلطانه محمد اباد ٩١٣

² There is a mosque inscription of Muẓaffar at Panduah, dated Ramazān 898 (*cf.* Blochmann, *Contributions* I, p. 291), while most of 899 must be allowed to Husain Shāh to enable him to issue the coins next referred to.

proceeded to the conquest of the surrounding countries. In A.H. 899 he is found issuing coins from Fathābād, the modern Farīdpūr, in which he proclaims himself the conqueror of Kāmrūp, Kāmatā, Jājnagar and Orissa (*I.M.C.*, Bengal coins, No. 175). Only the two former conquests need be considered here. The north of the present Rājshāhi Division as well as the modern districts of Goālpārā and Kāmrūp had then for at least two centuries been under the control of a race of Khen kings (allied to the Kachāris of the central Brahmaputra Valley) who ruled from Kāmatāpūr, a town situated not far from the modern capital of Kuch Bihār. Subsequent to his conquest of Orissa, Husain Shāh captured Kāmatāpūr by stratagem (*vide* Gait's *History*, page 43), the date being certainly (from the evidence of the Fathābād coin) 1493 or 1494, and not 1498 as given by Prinsep (Thomas' edition, *Useful Tables*, page 273). It is possible that Husain Shāh may then have marched into Kāmrūp, *e.g.*, from the appearance of the gateway of the Kachārī fortress of Dīmāpūr, which (as the illustration opposite p. 245 of Gait's *History* shows) is very similar to one of Husain Shāh's mosques: it seems possible that the Kachāris may also have come into contact with Husain Shāh; but from the absence of any reference to Assam on his coins or inscriptions, as well as the silence of the *Buranjis*, it is certain that Husain Shāh never invaded Assam proper, which was then confined to the eastern half of the Brahmaputra valley. The constantly repeated story that he did, appears to be based on the statement of the author of the *Riyāzu-s-Salāṭīn* (quoting from the '*Ālamgīr-nāmah*'; cf. Blochmann, *Koch Bihār and Āsām*, *J.A.S.B.*, 1872, p. 79). "After this (the conquest of Orissa) he planned to conquer Assam . . . and conquering the whole of that country up to Kāmrūp, Kāmtah and other districts, which were subject to powerful Rajahs like Rūp Nārāyaṇ, Māl Kunwar, Gos Lakhan and Lachmi Nārāyaṇ and others, he collected much wealth from the conquered tracts . . . The Rajah of Assam not being able to oppose him, relinquishing his country fled to the mountains. The king, leaving his son¹ . . . returned to Bengal . . ., but when the rainy season set in, the Rajah with his adherents issued from the hills, surrounded the royal army, and in a short time put all to the sword." As Mr. Gait suggests (*History*, p. 88, note) the *Riyāz* (or rather the author of the '*Ālamgīr-nāmah*') here undoubtedly mixes up the accounts of two expeditions, Husain Shāh's expedition against Kāmatā in 1494 and the disastrous invasions of the Assam valley by Muhammadans in 1527 (934 A.H.) and 1531—1533, of

¹ Evidently not Prince Danyāl, as this son of Husain Shāh erected a mosque at Mongīr in 903 A.H. (Blochmann, *A New King of Bengal*, *J.A.S.B.*, 1872, pp. 334 and 335).

which Mr. Gait gives an account from the *Buranjis* on pp. 87—92 of his *History of Assam*.

On the ruins of the kingdom of Kāmatāpūr arose the Koch Power, and the fact that Nara Nārāyaṇ adopted a coin of the Husainī dynasty as a type for his own coinage, probably points to his father Bisva Siṃha having been a tributary of 'Alā'u-d-Dīn and his successors. The issue of coins by Nara Nārāyaṇ is also easily accounted for by the fact that the Husainī dynasty came to an end in 1538, *i.e.*, just prior to the date when Nara Nārāyaṇ came to the throne.

The interesting coin figured as No. 8 of Plate XXII furnishes us with the first example of a half-*tanka* of the Koch kings.

NO. 8.—A silver half-*tanka* of LAKSHMI NĀRĀYAṆ.

Weight 85.1 grains. Size 1.18" (from the Cabinet of Mr. J. C. Higgins, F.C.S., late Sub-Divisional Officer, Jorhāt.)

Obverse and Reverse. The same as the full coin of Lakshmī Nārāyaṇ in the Shillong cabinet already described. The weight is somewhat high, but closely conforms to half the weight of the Husainī coin on which the Koch coin was modelled, which in turn was supposed to represent a *tanka* of 175 grains. The highest full coin of Husain Shāh in the *I.M.C.* weighs 167 grains (No. 181), while there is a coin of his son Ḡhiyāsu-d-Dīn weighing 168 grains (No. 225). As has been already noted, the weights of the ordinary half-coins in the Shillong cabinet, which are similar to those described by Mr. Gait in his Koch paper, range from 66.8 grains in the case of the present Māhārājā to 73.1 and 73.2 in the case of Prāṇ Nārāyaṇ and his successor Mada Nārāyaṇ (1666—1681), so that Prāṇ Nārāyaṇ evidently adopted for this coinage half the weight of his large coins taken as a standard, irrespective of their theoretical weight.

Under Nara Nārāyaṇ the Kochs soon came in contact with the Āhōms, who had just previously (1536) driven the Kachārīs out of the Brahmaputra valley into the present Kachār Hills, and extended their dominion west as far as Gauhati. At first, in 1547, Nara Nārāyaṇ was unsuccessful, but in 1563, a fresh conflict ended in the Āhōms suing for peace and acknowledging the Koch suzerainty (Gait, *History*, p. 51). Once the Āhōms had been crushed a rapid process of conquest of the surrounding nations ensued, the Kochs under Silarai, the brother of Nara Nārāyaṇ, successively conquering the Kachārīs, the Jaintias, the Sylhetis, and even, it is said, the Rājā of Tippera. In the case of the Jaintias, their Rājā was killed by Silarai with his own hand, and his son was placed on the throne on condition that he paid regular tribute and undertook in future not to strike coins in his own name.

This latter condition was observed by the Jaintia Rājās, at first literally and later technically, for nearly 170 years. Another sign of their dependence on the Koch kingdom is the fact that their coinage is modelled on the same type as that of Kuch Bihār. This will be seen from the coin in the Shillong Cabinet reproduced as No. 9, Plate XXIII.

No. 9.—Silver *tanka* of Jayantāpūr (probably minted by Pratāpa Siṃha, 1669—1678 A.D.). Weight 150·7 grains. Size 1·13".

<i>Obverse.</i>	<i>Reverse.</i>
(1) श्रीश्रीः.	(1) श्रीश्रीः
(2) यशोपूरपु	(2) Gun. ब चरण क Sword.
(3) रत्नरत्न श	(3) यशयश क
(4) के १६२२	(4) रत्न ☆

The coin given by Mr. Gait ¹ as 1592 *Sāka*, though very similar, appears to be of 1692. The three dots on the right of the first line of the obverse are a reproduction of those that appear so prominently at the end of the first line of the reverse of the Koch coin. These dots also reappear above the first line of the reverse, just under a star and crescent which can be traced either to another Bengal coin issued by 'Alā'u-d-Din's son, Naṣrat Shāh (*vide* Pl. XXIII, No. 11) or to the undated coin of Ghiyāṣu-d-Dīn Maḥmūd referred to later on (*vide* Pl. XXIII, No. 13), on one or other of which the Assam coinage is based. The gun and two-handed sword appear to have only a local reference, while the Solomon's seal is probably taken from the coins of the later Sūri dynasty (*cf.* *I.M.C.*, No. 805—Islām Shāh—954 A.H.; and No. 879—Muḥammad 'Adil—A.H. 961 = 1553 A.D.). It is also a common shroff mark (*cf.* *I.M.C.*, Bengal Coins, No. 216). The number of lines on obverse and reverse are the same in both Koch and Jaintia coins, and the inscription on the reverse of both is the same. As no coins seem to have been issued from Jayantāpūr prior to 1591 *Sāka* (= 1669 A.D.), it would appear that the Jaintia Rājās, for 100 years after the conquest of Jaintia by Silarai, observed the orders of their conqueror literally, and issued no coins at all. The circumstances that led to their issuing coins about 1670 were probably the conquest of Prān Nārāyaṇ by Mīr Jumlah in 1661 and his subsequent death in 1666, but as the Rājās of Kuch Bihār—especially Mada Nārāyaṇ, Prān Nārāyaṇ's successor—continued to maintain a certain amount of local authority, the Jaintia Rājās still technically observed the condition imposed on them in 1563 by referring to themselves not by name but as the "*Purandars* of

¹ *Some Notes on Jaintia History*, J.A.S.B., 1895, p. 244; and Fig. 9, Plate XXIV.

Jayantāpūr.” Gradually however the Koch dominions lessened in size and the power of the Rājās decreased (*vide* Hunter, *Statistical Account of Bengal*, Vol. X) till finally, in 1731, the pretence of submitting to the Koch kingdom ceased and we find the names of the Jaintia Rājās appearing for the first time on their coinage. The direct cause was probably the appointment in 1727 of Mīrzā Muḥammad Sa’id to the post of Faujdār of the Chaklah of Ghoraghāt, Rangpūr and Kuch Bihār, as it is recorded by Muhammadan historians that this officer conquered the Rājās of Kuch Bihār and Dinājpūr, “and acquired possession of their treasures, buried hoards, jewelleries and effects” (*Riḡāz*, ‘Abdu-s-Salām’s trans., p. 306).

The section may conveniently be concluded by a reference to the coin figured as No. 10 of Plate XXIII. This coin, which belongs to Mr. E. C. Stuart Baker, Deputy Inspector-General of the Criminal Investigation Department, Eastern Bengal and Assam, was brought to him when stationed in 1896 or 1897 at Maibong in the Kachār Hills by a Kachārī who said he had found it among some bricks at the side of one of the old tanks in the neighbourhood. Maibong was established as the Kachārī capital in 1536 after their defeat by the Āhōms had caused the Kachārīs to desert their old capital at Dīmāpūr, and it remained the Kachārī headquarters until 1706 when the defeat of King Tamradhvaja by the Āhōm King Rudra Sinha led to another migration to Khāspūr in the Kachārī Plains. The history of Gaur was repeated at Maibong in the ‘nineties of the last century, when the construction of the Hill Section of the Assam-Bengal Railway led to wholesale removal of bricks from the ruins of the Kachārī capital, for *surki*; but numerous brick-lined tanks and other signs of human habitation still testify to the former importance of the place.

The coin is evidently closely related to the two Jaintia quarter-coins illustrated by Mr. Gait in Plate XXIV of the *J.A.S.B.* for 1895 and referred to on p. 244 of his paper of the same year (*op. cit.*). The type of coin with its marginal circle of dots and 3-lined inscription is the same, but whereas the inscription on the Jaintia coin is in Bengali characters, that on the obverse of the Maibong coin appears to be a debased Devanāgarī, while the reverse is an unknown script, somewhat suggestive of the cuneiform characters of Assyrian inscriptions. Nothing certain has yet been made of the inscription on the obverse, though it evidently begins with the usual ॐ ॐ. To the right appears the matchlock, which has hitherto been regarded as the characteristic sign of a Jaintia coin. Mr. Gait on p. 4 (para. 7) of his *Report on the Progress of Historical Research in Assam* states that it is doubtful whether the Kachārī Kings ever had a mint, nor has any distinctive Kachārī character survived, but from the place of discovery, there is a strong presumption that Mr. Baker’s coin is a specimen of the long-sought-for Ka’hār

coinage. It may also be possible that another coin of these kings is the coin in Bengali characters bearing the name of Jaya Simha and date 1585 *Sāka*, described by Mr. Gait on p. 245 of his *Notes on Jaintia History* (*loc. cit.*), as a seal of a Rājā bearing the same name, and date 1706 *Sāka*, was discovered by a Settlement Officer at Khāspūr during the search for historical materials in Assam (*Report*, p. 4).

Mr. Gait does not give any measurements for his Jaintia quarter-coins. The Maibong coin measures '82" across and '88" from top to bottom, while its weight is 38·4 grains. This weight is approximately one-quarter the weight of the Jaintia coin No. 9, previously described.¹

E.—THE ORIGIN OF THE ASSAMESE COINAGE.

The influence exerted by the Muhammadan coinage did not extend merely over the Kochs and Jaintias, for a careful examination shows that the Assamese coinage is similarly modelled on another variety of Husainī coins. To understand this we must return for a moment to a consideration of the Muhammadan invasions of Assam in the first half of the 16th century. The *Buranjis* state that the Muhammadans in 1527 advanced up the Brahmaputra valley under command of the Great Vizier, but were defeated and fled, losing 40 horses and a similar number of cannon. The Muhammadans again advanced in 1531 and fighting continued for two years, on or near the Brahmaputra, a little to the east of Tezpūr. In the first year the Muhammadans were defeated and their commander Bit Malik slain. The following year, 1532, the Muhammadans were largely reinforced and were completely successful, the Ahōms being defeated, both in April and again after the Rains, while Sūklenmūn, the son of the Ahōm King, was severely

¹ Since this paper was read the question as to whether Kāchārī coins were ever struck has been settled by the receipt on loan from Mr. F. E. Jackson, C.S., Deputy Commissioner, Cachar, of a silver coin minted by Govinda Chandra, the last Kachhārī King (1813-1830). The whole of the inscription, which is in Bengali characters, cannot be deciphered, but what has been made out with the help of Bābu Rakhal-das Banerji of the Archaeological Dept. is given below—

<i>Obverse.</i>	<i>Reverse.</i>
(1) শ্রীশ্রী গো	(1) হিড়িম্বু
(2) বিদ্যচন্দ্রস্য	(2) র বা ম শ্রী র গ
(3) রাজো [?]	(3) চ ভী প দা
(4) ?	(4) (জ) জু ষ (:)

The coin is in the possession of a descendant of Govinda Chandra's Prime Minister, and, as it is said to be the only one in existence, the owner refuses to part with it. It is '93" in diameter, and weighs 175·75 grains. As may be seen from the reproduction given at the end of this paper, it is struck from a good die. (25-1-10).

wounded and narrowly escaped capture. In the following year, however, the fortune of war changed, and after the Muhammadan leaders Bāngāl, Tāju, Turbak and Husain Khān had been one after the other slain, the Musalmān forces broke and fled. The pursuit continued as far as the Karatoya river, and before returning the Āhōm commander is said to have sent an envoy to the King of Gaur with presents and received back a princess for the Āhōm King. (Gait, *History*, pp. 87—92).

At the time in question, A.H. 934—939, Nasrat Shāh was still on the throne of Gaur, but his brother Ghiyāsu-d-Dīn Mahmūd is also found issuing coins as co-ruler (*cf.* Bloch's notice of the Jasodal find—*J.A.S.B., Proc.*, 1898, page 172). Prinsep states, on the authority of the *Āsām Būranjī* of Hulirām Dhaikiyāl Phukan,¹ that Assam was invaded by Dulāl Ghāzī, son of Husain Shāh, in 1498, and immediately afterwards, in the same connexion, come the names of Musundar Ghāzī and Sultān Ghiyāsu-d-Dīn. This clearly points to the Great Vizier having been none other than Ghiyāsu-d-Dīn Mahmūd, and the suggestion is strongly supported by two facts—(a) that (as noted below) the Assamese coinage is based on a type of coinage simultaneously in use both by Nasrat Shāh and Ghiyāsu-d-Dīn, and (b) that (as recently pointed out by Walsh in the *Journal of the Royal Asiatic Society* for 1908—*Coinage of Nepal*, pp. 685—688) the Nepalese under Jaya Mahendra Malla, King of Kāthmāndu from 1566 to 1576, shortly afterwards adopted Ghiyāsu-d-Dīn's characteristic coinage, with a small circle in the middle of the coin, as a model for a new type of coin for use both in Nepal and Tibet. The pattern of coin might well have been taken to Nepal by Nara Sīnha, brother of the Koch King Nara Nārāyan, who, after being defeated by his brother, fled there for refuge about 1540 (Gait, *History*, p. 48); but (on the analogy of the coin of Āvā referred to later) it is also possible that the Tibetans, in addition to supplying the silver for the new coinage, also supplied the type coin, which they could easily have obtained through their relations with Bhutān (Gait, *idem*, p. 49). In any case, however, this strange influence on the coinage of Nepal, Tibet and Assam could hardly have been exerted unless Ghiyāsu-d-Dīn had exercised for a considerable period military influence at the base of the Himalayas.

Up to the reign of Sūhuṁmūn, the Āhōms do not appear to have needed any regular coinage, but as soon as Sūkleṁmūn succeeded to the throne in 1539, after killing his father Sūhuṁmūn, we find coins being issued, modelled either on a type of Nasrat Shāh's coins minted in A.H. 927, or less probably, on a unique undated coin of Ghiyāsu-d-Dīn Mahmūd of a similar type, which is wrongly ascribed in the *Indian Museum Catalogue*, Vol. II, Part II, No. 217) to Nasrat Shāh. This affiliation will be

evident when a comparison is made between Süklenmün's coin of 1543 (No. 1, Plate XXIX of Vol. I of the *I.M.C.*), Nasrat Shāh's coin (No. 248, Plate V, *I.M.C.* Vol. II), and Maḥmūd's coin given on Pl. VI of the same Catalogue. The Āhōm coins, it is true, are octagonal for the reason stated on page 97 of Mr. Gait's *History*, viz., that the *Yōginī Tantra* describes the Āhōm country as being of this shape, and the weight may also be based on the old Hindu standard of $1\frac{1}{2}$ *panas* or 180 grains (*vide* Walsh, *op. cit.*, p. 676) instead of the *tanka* of 175; but apart from these differences, the resemblance is marked.

To enable the derivation of the Āhōm coinage from that of the Husainī Kings to be readily seen, I give in the annexed Plate XXIII, obverse of one Nasrat Shāh coin and reverse of another of the type referred to (Nos. 11 and 12, both from my own cabinet) side by side with an undescribed coin of Chakradhvaja, who ruled over Assam from 1663 to 1670 (*cf.* Mr. Gait's *History*, pp. 144—149). The coin of Ghiyāsh-d-Dīn Maḥmūd previously referred to is also reproduced (No. 13).¹

No. 14.—Silver coin of CHAKRADHVAJA SĪMHA—(belonging to Bābū Prithvindra Mohan Ray, Zemindar of Rowile, Dacca District).

Weight 174·1 grains. Size—·83". Date 1585 *Sāka*
= 1663 A.D.

Obverse—In a double octagon
with row of dots between.

Reverse—Appearance as
obverse.

(1) ঐশী স্ব

(1) ঐশী শি

(2) গ দেব চক্রধর

(2) বরাম পদা

(3) জ সিংহস্য শাকে

(3) বরিন্দ পদা

(4) ১৫৮৫

(4) য়গস্য

It is noticeable that in this, as well as in the coin of the Assamese Pratāpa Sīmha figured as No. 2, Plate XXIX of Vol. I, of the *I.M.C.*, the winged dragon is wanting, a fact which suggests that coins in Āhōm characters, without the dragon,

¹ The following are the details of coins No. 11, 12 and 13:—

No. 11.—Nasrat Shāh (Obverse);
927 A.H.; mint Nasratābād.
Weight 160·3 grains. Size
(across ·84"; top to bottom
·90").

No. 12. Nasrat Shāh (Reverse) of
927 A.H.; mint Nasratābād.
Weight 161·6 grains; Size ·90".

(1) السلطان

(1) نصرشاه سلطان

(2) (بن) السلطان

(2) حسين شاه سلطان

(3) ناصر الدنيا و الدين

(3) سيني خلد ملكه

(4) ابو المظفر

(4) نصرتا بان ۹۲۷

will also be found to have been issued by Sūklenmūn. The form of the Bengali ঐ is noticeable, as it is more modern than the form ঐ employed 50 years later by Rudra Simha (*vide I.M.C.*, same Plate, No. 3, the reverse of which has been shown upside down).¹

F.—THE BURMESE COINAGE IN ASSAM.

I conclude these notes on the coinage of North-Eastern India with two Assamese coins which apparently belong to a hitherto-undescribed coinage, issued by the Burmese during their brief sovereignty over Assam, 1819—1825.

No. 15.—Octagonal silver coin—cast (in the cabinet of Mr. A. W. Botham, C.S., late Deputy Commissioner, Sibsāgar).

Weight 144·9 grains. Size ·93".

Obverse :—Two-lined inscription, not properly oriented to two opposite sides of the octagon.

Reverse :—Representation of a pig, iguana or mongoose.²

No. 13.—Ghiyāsu-d-Dīn Mahmūd (no date or mint). Weight and size, according to *I.M.C.* No. 217, 163·5 grains and ·97". Corrected reading.

<i>Obverse.</i>	<i>Reverse.</i>
(1) السلطان	(1) السلطان
(2) ابن السلطان غياث	(2) ابن حسين شاه
(3) الدنيا و الدين	(3) السلطان خلد
(4) ابو المظفر	(4) الله ملكه
(5) محمود شاه	(5) و سلطانم

¹ An identical coin of Chakradhvaja from the British Museum Collection, recently described by Mr. J. Allan in Vol. IX of the *Numismatic Chronicle*, weighs 170·7 grains and is ·8" in diameter.

Mr. Allan's paper also confirms my suggestion that the dragon (*Simha*) was not invariably used on the Assamese coins until Hindu titles were adopted by the Assamese Kings. Sūklenmūn's *Muhur* figured as No. 1 of Plate XXIII (*Num. Chron.*, Ser. IV, Vol. IX) shows two rising suns, but no dragon (25-1-10).

² The image of either a *Gui-samp* (iguana) or mongoose appears on the pedestal of a statue of Raksha Kālī, found at the village of Paikpārā in the Munshiganj Sub-Division of the Dacca District, and although the pig is considered lucky in Persia and Europe, I can find no reference to its being considered so in India or Burma. Śrījūt Golāp Chandra Barua, the translator of the Ahom *Buranjis* for Mr. Gait, informs me however that the pig was essential for Ahōm sacrifices and that the Deodhāis (Ahōm priests) of Sibsāgar still keep pigs and eat pork. The reason why no food offered at the famous temple of Kāmākhyā is taken by Brahmīns is said to be that pigs were once sacrificed there by some Assamese king. The use of the pig in sacrifice probably accounts for its image being found on these Assamese coins.

Mr. Botham writes as follows regarding this coin: "I am also sending what was sold to me as a "Gahuri" Muhur (*Gahuri* being Assamese for a pig), rumours of which I have heard ever since I began to collect. All I could learn of it was that it had a rough representation of a pig on it, and that owners were very chary of parting with it, as it was considered lucky. The coin I have got seems to be a casting—but even if it is not genuine, it is I fancy likely to be a casting of the genuine coin. The inscription might be *Sri Sri Gahuri Nipra* (?). I cannot learn what king is supposed to have struck these coins."

The coin itself furnishes no indication of its origin, but another similar coin enables this to be stated.

No. 16.—Octagonal silver coin; (in the cabinet of Mr. J. C. Higgins).

Weight 190·4 grains. Size 1·0".

Obverse:—Unsymmetrical floral arrangement of lines similar to the pattern on the reverse of the coin of Āvā dating from 1796, of which an engraving is given by Marsden (*op. cit.*, Plate LIII).

Reverse:—Animal as in Mr. Botham's coin.

The coin is struck—not cast—and only the animal is in relief. In the plate, by an optical illusion, the floral design also appears in relief, though in reality the lines are incused. Marsden, on page 805 of his *Numismata Orientalia*, states that no coinage of Āvā then existed, and explains the coin he illustrates as follows:—"When Symes, however, was taking his departure from the court of Āvā, to which he had been sent on a public mission, he was desired by that Government to procure dies to be engraved at Calcutta and pieces of silver representing the Tycal¹ to be struck for its use, according to a pattern with which he was furnished. With a specimen of these he favoured me.... There is no evidence of its having been put into circulation in Burmese dominions."

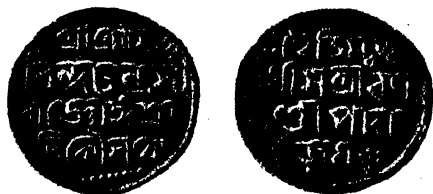
The obverse of the coin given by Marsden is very similar to the reverse of the Burmese symbolical coin, catalogued as No. 6 of Sundry Coins on page 333, Vol. I, of the *I.M. Catalogue*. Marsden does not give any measurements of his coin, but the weight of the symbolical coin is 142·7 grains.

As their widely varying weights show, these Burmese coins of Assam are more of the nature of trial pieces than actual coinage. Their production, however, may account to some

¹ On the previous page Marsden had referred to the Arakanese coins as being current at the trading ports of Arakan and Pegu under the denomination of *Tikal*, their average weight being about 152 grains.

extent for the extraordinary dearth of coins of the later rulers of Assam, for the period 1741-1747 *Sāka* (1819-1825). Only 7 coins of this time appear to be known, *viz.*, 5 of Chandrakanta (2 full coins, dated 1741 and 1742 respectively; and undated $\frac{1}{2}$ -, $\frac{1}{4}$ -, and $\frac{1}{8}$ -rupees); and 2 of Jogeśvara (an undated $\frac{1}{2}$ -coin in the Shillong cabinet; and a $\frac{1}{4}$ -Rupee dated 1743 in the possession of Mr. Botham). No specimen of the coinage of Purandar Simha, the last king of Assam, has yet come to light.

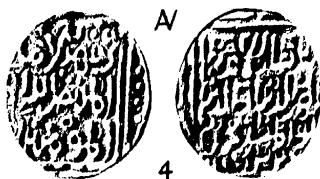
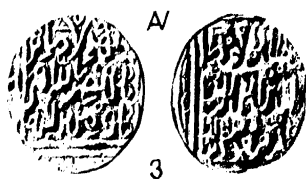
POSTSCRIPT.



In connexion with the annexed reproduction of the Kachāri coin described in the note at the end of Section D of this paper, the *Hidimbapūra* of the inscription probably refers to Silberband, near Khāspūr in the Cachar Plains, where Mr. Gait states that ruins of the palaces of the last three Kachāri kings are still to be found (*Report*, Appendix III, p. 69). Captain Fisher makes the following remarks on the goddess whose name occurs on the reverse of the coin:—

“The worship of irascible female spirits, and the practice of the Tantra magic ascribed by the Hindus to the people of Kamrup, are imputations which derive some countenance from the existing worship of Ramchundi [Ranacandī], the Thakoorain of Kachar, who is adored under the symbol of a sword religiously preserved in the Rajbarri, and to the possession of which the most inexpressible importance is attached.”

(Memoir of Sylhet, Kachar, and the adjacent Districts: *J.A.S.B.*, 1840, pp. 832 and 833). Ranacandī is the War-Goddess of Tantric Hinduism.





AR



9



AR



10



AR



11

12



AR



13



AR



14



AR

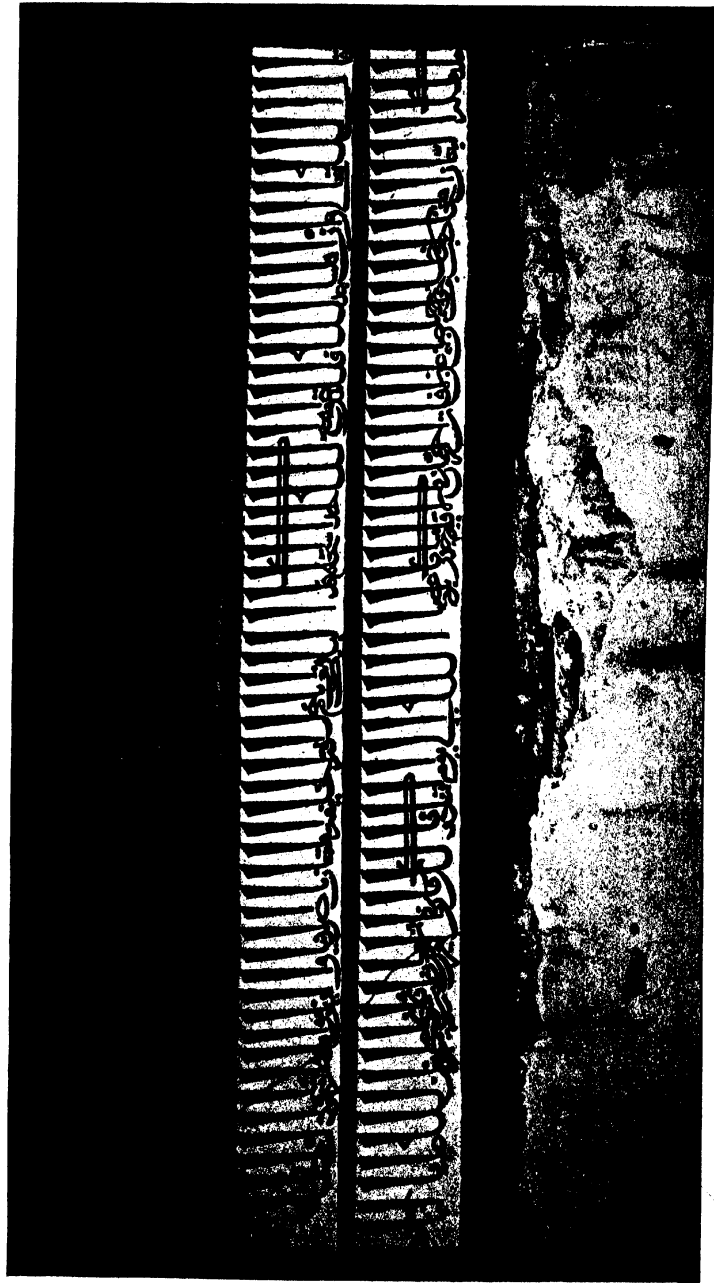
15



AR

16





Engraved & printed at the Offices of the Survey of India, Calcutta, 1911.

Dacca Inscription of Nasir-u-d-Din Mahmud Shah I, dated the 20th of Sha'ban, 863 A. H.

*From the Journal and Proceedings, Asiatic Society of Bengal
(New Series), Vol. VI, No. 11, 1910.*

**Contributions to the History and Ethnology of North-
Eastern India. II.**

By H. E. STAPLETON.

54. Contributions to the History and Ethnology of North-Eastern India—II.

By H. E. STAPLETON, *Indian Educational Service.*

THE COINAGE OF ASSAM IN ITS RELATION TO THE HISTORY OF ASSAM AS GIVEN IN THE "BURANJIS."

At the end of December 1906, three coolies who were hoeing in the Daffaling Tea Garden, in the Jorhāt Sub-Division of Sibsāgar District, came upon a large number of old coins. The Deputy Commissioner investigated the matter under the provisions of the Treasure Trove Act and ultimately 928 coins—mostly minted by Assamese Kings—were recovered. On their being forwarded to Shillong for report, the coins were classified as follows:—

East India Company's Coins—Rupees, 15; $\frac{1}{2}$ -Rupees, 1.

Mughul Rupees—13.

Assamese Coins.

King.	Rupees.	$\frac{1}{2}$ -Rupees.	$\frac{1}{4}$ -Rupees.
Rudra Siṃha	18	2	..
Siva Siṃha	5	1	..
Siva Siṃha and Phuleśvarī	6	..	..
Siva Siṃha and Prāmātheśvarī	6	2	..
Siva Siṃha and Ambikā	12	1	..
Siva Siṃha and Sarveśvarī	4	3	..
Pramatta Siṃha	9	8	2
Rājeśvara Siṃha	25	32	..
Lakshmi Siṃha	16	97	..
Gaurinātha Siṃha	79	516	..
Bharatha Siṃha .. ..	..	2	..
Sarvānanda Siṃha	1	3	..
Kamaleśvara Siṃha .. ..	..	6	..
Chandra Kānta Siṃha	2	9	..
Brajanātha Siṃha	2	26	..
Jogeśvara Siṃha .. ..	..	4	..
TOTAL	185	712	2

The Local Government, recognising the importance of the find, requested that an account of it should be included in a paper dealing with all Assamese coins from the time of Rudra Siṃha to the end of Assamese rule, and steps were accordingly

taken to collate the information that could be derived from the principal local collections. These are as follows :—

(a) The Shillong Cabinet of 176 specimens including a selection from the coins of the Daflating find (referred to subsequently as [S. C.]).

(b) The Indian Museum Cabinet with 117 coins, recently described by Mr. Vincent Smith (*Catalogue of the Coins of the Indian Museum, Calcutta*, Vol. 1, Part III, pp. 294—307) [I. M. C.].

(c) Collection of 260 coins belonging to Mr. A. W. Botham, C.S., late Deputy Commissioner, Sibsāgar, who kindly forwarded for my inspection 62 selected specimens which he believed were undescribed [B].

(d) My own collection of about 130 specimens [H. E. S.].

In addition to the above, (e) Mr. Gait, in the course of his researches on Assamese history, opened at Sibsāgar a register of Assamese coins in which 242 coins are described. These include most of the Āhōm coins in the British Museum as well as some of the Assamese coins in the Shillong collection. An abstract of the information contained in the register is given in tabular form on page 3 of his *Report on the Progress of Historical Research in Assam*.

Small collections of 17 and 38 Assamese coins respectively are also in the possession of Lieut.-Col. Gurdon, I.A., Commissioner of the Assam Valley, and Mr. R. Burn, C.S., Deputy Commissioner, Gonda, U.P. Mr. Burn's collection formerly belonged to Dr. White King.

From the first and third of these, the coins figuring in Plates XXVI and XXVII had been selected and forwarded to the Survey Office at Calcutta for reproduction when I learnt that a catalogue of the 300 Assamese coins in the British Museum had already been prepared for publication by Mr. J. Allan of the Department of Coins and Medals of that institution. From the advance proof of his paper for the *Numismatic Chronicle*¹ that Mr. Allan was good enough to supply me with, it was evident that a detailed catalogue of Assamese coins would be superfluous, but, on the other hand, sufficient materials were now available to render possible a discussion of the bearings of Assamese coin inscriptions on the statements made in the *Buranjis*, the indigenous histories of Assam that Mr. Gait has utilised in the preparation of his *History of Assam*.

So far as is at present known, regular annual coinage in Assam only commenced with the accession of Rudra Simha in 1696 A.D., while the last date found on an Assam coin is 1743 *Sāka* (= 1821 A.D.). For this period of 125 years more than 750 selected coins are either catalogued or have passed through

¹ 1909, pp. 300—331.

my hands, and the resulting average of 6 per annum appears sufficient to justify comment on the few instances of years of which no coins have hitherto come to light. In addition to these 750 coins (which, with half a dozen exceptions, are in Bengali script, the language being Sanskrit) Mr. H. A. Grueber, Keeper of Coins and Medals at the British Museum, kindly placed at my disposal casts of the unique British Museum collection of 28 Assamese coins in the Āhōm language and script, most of which belong to the predecessors of Rudra Simha. The object of the present paper is to utilise these materials in checking the statements of the *Buranjis* regarding Assamese history, to supply any further information that may be derived from a study of the coins, and incidentally to summarise our knowledge of Assamese numismatics.

PRE-ĀHŌM COINS IN ASSAM.

Although we might expect from the intimate relations between Harsha Sīlāditya and the vassal King of Kāmrūp in the time of Hiuen Tsiang (645 A.D.) that coins modelled on those of Harsha would be found in Assam, no such tokens have hitherto come to light, and the only information from numismatic sources that has reached us for the long period until Sūklemūn initiated an Āhōm coinage in 1543, is derived from one or two finds of Musalmān coins, the chief being that made at Gauhati in 1880 (*cf.* Hoernle in *Journ. Asiatic Soc. Bengal*, 1881, p. 53). As noted in the first paper of this series (*Journ. Asiatic Soc. Bengal*, 1910, p. 150) the Gauhati find may be regarded as a relic of the invasion of Kāmrūp by Tughril Khān, the insurgent Governor of Bengal who styled himself Sultān Mughīṣu-d-Dīn Yuzbak. The coins range in date from those of Sultān Altamsh (614 A.H.) to those of Mughīṣu-d-Dīn Yuzbak himself, minted at Lakhnauti in Ramazān. 653 A.H., and the occurrence in the find of a coin of the previous insurgent Governor Ghiyāṣu-d-Dīn 'Iwaz Ibnu-l-Husain dated the 2nd Jumāda, 621 A.H., suggests that Tughril Khān's disastrous expedition into Kāmrūp may have been prompted by his predecessor's excursion up the Brahmaputra in 624 A.H. (=1226 A.D.), when he is said to have advanced as far as Sadiya. Sūkāphā, the first Āhōm King in the Assam Valley, had crossed the Patkoi Range just two years before Ghiyāṣu-d-Dīn 'Iwaz's invasion, and Tughril Khān's expedition was exactly contemporary with the founding of Charāideo, the first capital of the Āhōm Kings. At some unknown date prior to the invasion of the Āhōms, the old Hindu kingdom of Kāmrūp had been overwhelmed by an invasion of a race of Tibeto-Burmans, known as Bodos, who finally established a capital on their western frontier at Kāmatāpur, not far from

the present Kuch Bihār. The ruling section of the tribe in the west called themselves *Khens*, while those who settled in the Brahmaputra Valley proper from Tezpur to west of Gauhati were known as *Kachārīs* (lowlanders). In the extreme east of the valley, the country round Sadiya, which still retained the old Hindu name of *Vidarbha*, was in possession of another tribe of the same stock called *Chutiya*s who appear to have descended from the Hills at a later date than the original *Bodos*. In addition to these, the *Āhōms* found in Darrang and Nowgong a confederation of petty chieftains known as the *Bāra Bhuigyas*, who seem in the first instance to have been established by the King of *Kāmatāpur* as "Wardens of the Marches" to hold back the *Chutiya*s (Gait, *op. cit.*, p. 38), but who afterwards warred indiscriminately on *Kachārīs* and *Chutiya*s alike. On the whole it is probable that the "*Rāi of Kāmṛū*" who defeated *Mughisud-Din* was a *Kachārī Rājā* of *Prāgjyōtishpur* (Gauhati); but at the same time it has to be recollected that the story of the origin of the *Bāra Bhuigyas* indicates that the King of *Kāmatāpur* was either actual ruler or suzerain of the Brahmaputra Valley up to the *Chutiya* frontier—a fact moreover which explains why the *Āhōms* came into conflict with the rulers of *Kāmatāpur* so soon after their arrival from Upper Burma.

After 1257 A.D., according to Gunabhiram Barua,¹ the Musalmān invasions of the Brahmaputra Valley ceased until the time of the "Great Vizier" in 1527 A.D. (*vide* previous paper, p. 161), but the existence of the coin of *Sikandar Shāh* dated *Chāwalistān* 'urf 'Arsah *Kāmṛū*, 759 A.H. (1357 A.D.; *cf. Indian Museum Catalogue*—Bengal coins—No. 38), as well as the discovery in 1892 in *Kāmṛū* proper of 30 coins of various 14th century Bengal Kings (*Journ. Asiatic Soc. Bengal. Proc.*, April 1893, pp. 90 and 91) seem to indicate that Muhammadan influence continued to be exercised over some portions of the old kingdom of *Kāmṛū* even to the end of the 14th century. The reported expedition of the Emperor *Muhammad Ibn Tughluq* of *Dilhī* into "Assam" about 1337 A.D. may also be recalled in this connexion (Blochmann, *Koch Bihār and Āsām*, *Journ. Asiatic Soc. Bengal*, 1872, p. 79, quoting from the '*Alamgīrnāmā*'), and a recent find has proved that *Muhammad Ibn Tughluq*'s coins minted at *Sunārgānw* in 733 and 734 A.H. (1333 A.D.) after the death of *Ghiyāsu-d-Dīn Bahādur* were current in what is now western Mymensingh. Mr Gait suggests on page 61 of his *History* that the portion of Mymensingh east and north of the old Brahmaputra was only incorporated in *Kāmṛū* at the time of *Dā'ūd*'s defeat by Akbar's soldiers in 1575 A.D., but geographical considerations alone would lead us to believe that it always formed a part of *Kāmṛū*. That this was actually the case is proved by the statement of the *Yōginī*

¹ *Assam Buranjī*, p. 73, Calcutta 1897 edition.

Tantra (quoted on pp. 51 and 52 of Mr. Gait's *Report on Historical Research*) that the southernmost point of Kāmṛūp was the confluence of the Brahmaputra and Lākhyā rivers, *i.e.*, Egāro Sindhu, the spot where 'Isā Khān afterwards erected a fort and where his final struggle with Mān Singh took place (*cf. Journ. Asiatic Soc. Bengal*, 1909, p. 372).¹ Raids from the west and south banks, across the Brahmaputra, would easily account for the occurrence of such a coin as Sikandar Shāh's, without any invasion of the country north of the Garo or Khasia Hills being implied, while it is also probable from the fact that a large portion of south-eastern Mymensingh is called after Husain Shāh, that this was the "Kāmṛū" Husain Shāh boasts on his coins to have conquered.

COINS IN ĀHŌM SCRIPT.

In the first paper of this series it was shown how the Assam coinage was modelled on coins issued by the sons of Husain Shāh of Bengal—either Naṣrat Shāh or more probably Ghīyāsu-d-Dīn Maḥmūd. The first Āhōm monarch to issue coins was Sūkḷeṇmūn, whose coins all date from the 15th year of the 17th *taosīnā*, or cycle of 60 years current among the Āhōms, equivalent to 1543 A.D., and the cause of the introduction of a metallic coinage in place of the cowries previously in use was undoubtedly the fact that, through the exertions of Sūkḷeṇmūn's father Sūhuṇmūn (whose reign began in 1497), the Āhōm power, from a petty state, had suddenly expanded into a provincial kingdom roughly co-terminous with that of the ancient Hindu Kings of Kāmṛūp. In 1523, the Chutiya's had been finally crushed and their country annexed; in 1536, the Kachāris were similarly treated; while between these dates, as has already been detailed in the previous paper, two invasions by the Muhammadan rulers of Eastern Bengal were successfully met and the authority of the Āhōm King exercised as far as the Karatoya river, *i.e.*, over most of the territory that 40 years before had comprised the Kingdom of Kāmātāpur. It is true that this boundary was not long maintained, but henceforward, with only a brief interval when the Koch dominions served as

¹ The *Bāra Bhuiyas* of Eastern Bengal, of whom 'Isā Khān was the chief, were obviously a local imitation, proximate or remote, of the *Bāra Bhuiyas* of Assam previously referred to. Another set of *Bāra Bhuiyas* are also mentioned among the Kochs (Gait, *Hist.*, p. 46), and as 'Isā Khān made himself lord of Eastern Mymensingh by conquering the Kochs who then held it, it is possible that he was the first to introduce the nomenclature into Eastern Bengal. From the circumstances of the time the *Bāra Bhuiyas* of Bengal soon disappeared, but if an inference may be drawn from the Bengali proverb "বার গাভের কাজ ভাল হয় না" the system, during its short existence, did not specially commend itself to the people over whom 'Isā Khān and his fellow *Bhuiyas* ruled.

a buffer state, the western and southern border line of Assam formed the North-Eastern frontier of Muhammadan India. The first coin minted in Assam raises a question as to the accuracy of the *Buranjis*. The striking of new coinage was, in later years, the invariable accompaniment of installation,¹ and except in the case of Gadādhara's coins no evidence exists to show that coins in Āhōm script were ever struck, except to mark this occasion. Either therefore the *Buranjis* are wrong in stating that Sühuñmün was assassinated in 1539, or his son does not appear to have been formally installed on the *Singari-ghar* at Charāideo until four years later. It is of course possible that Sükleñmün did not begin to strike coins until after he had been on the throne for some time, but if this was done in the first instance, it is not clear why the system of an annual coinage was limited to the coins in Bengali script that began to be issued at a much later date.

The numismatic record for the period between Sükleñmün's coronation and Gadādhara's accession in 1681 is very incomplete, but besides the Āhōm coins a system of annual coinage was introduced at some date prior to 1648. This will be dealt with in the next section. The only fairly large collection of Āhōm coins is that belonging to the British Museum, and the few other coins that exist are probably all duplicates of those at London. Āhōm coins of the following Kings are known:—

1. Sükleñmün, 15th year of 17th *taosīnā* = 1543 A.D.
2. Süñātpḥā (Udayāditya), 21st year of 19th *taosīnā* = 1669.
3. Sühuñ, 27th year = 1675.
4. Süpātpḥā (Gadādhara), 33rd year = 1681. The comparatively large number of varieties of Süpātpḥā's coins, differing in the presence or absence, and position, of the ornamental *Simha*, the bird, and the "rising sun," rather point to the issue of fresh coins at intervals throughout his reign with the main inscription and date unaltered.
5. Pramatta Simha (Süneñphā), 36th year of 20th *taosīnā* = 1744.
6. Rājesvara (Süremphā),² 43rd year = 1751.

All Āhōm coins have practically the same inscription.

¹ Gait, *op. cit.*, p. 232; *vide* also Marsden, *Numismata Orientalia*, p. 797, for an account of the minting of coins at the installation of Rājā Rām Ganga Māñikya of Tippera in 1821.

² The meanings of the Āhōm names of these Kings are as follows:—
Sükleñmün—*Sü*, tiger; *k(ḷ)en*, splendid; *mün*, country—'The splendid tiger of the country.'

Sü-nāt-phā—'The handsome tiger of heaven (*phā*).'

Sü-huñ—'The great tiger.'

Sü-pāt phā—'The club(-like) tiger of heaven.'

Sü neñ-phā—'The brave tiger of heaven.'

Sü rem-phā—'The tiger from the border (*rem*) of heaven.'

Obverse.

Chao, the God, [King's name], *Pin*, became, *Khün*, King, *Lāknī*, in the year, [year of cycle].¹

Reverse.

Kao, I, *Boi*, prayer, [Deity's name, generally with prefixed appellation, *Phā*, heavenly], *Hē-u*, offer, *Chū*, in the name.

Only three deities are mentioned on Āhōm coins—

1. On those of Sūklenmün. TĀRĀ (*tā*, eye; *rā*, evil) the Evil-eyed One, that is to say, not the gentle Buddhist goddess, Tārā, but a Shān goddess who was first incorporated into Hinduism as the Tantric Tārā, the War-Goddess, and then transformed as an *amśa* of Durgā into Kāmākhyā, the Goddess of Desire. According to the *Yōginī Tantra (Report)*, p. 52) this goddess was worshipped at Nīlāchala Hill near Gauhati from the time of Naraka, the legendary hero of Assam, who is said to have been born of the Earth by Vishnu in the form of a pig (the third incarnation), and who was the father of King Bhagadatta whose deeds are recounted in the Mahābharata..

2. Sūñātpḥā and Sūhun } PHĀ-TÜ-CHIN, literally, 'the highest being of heaven', i.e., The Supreme God.

In the case of Sūñātpḥā's coin the additional suffix *Ph(r)āñ hum*, 'the most glorious', also appears. This Shān god was identified with either Śiva or Vishnu, according as the Hindu priest happened to be a Śākta or Vaisnava.

3. Gadādhara, Pramatta, and Rājeśvara } LENDĀN.

Leñdān literally means "the Sole (lord of) Thunder", and hence was identified with Indra by the Brahmins attached to the Āhōm court.²

It is obvious from the small number of known Āhōm coins that much work still remains to be done when a fortunate find will place us in possession of more of these interesting coins. In the meantime, to facilitate subsequent work by numismatists, I have embodied the results of a careful study of the casts

¹ In Sūklenmün's coins *Phā* (heavenly) is inserted as an additional appellation before the King's name, and *Chao* (God or King) takes the place of *Khün*. The third line of the obverse of Sūñātpḥā's coin reads *Chao Chām Pī*, *Pī* being another Āhōm word for 'year' and *Chām* a copula which may be translated by 'and this was'. There are two misprints in Mr. Allan's transcription of this line.

² For a full account of the Āhōm theology, pp. 68--71 of Mr. Gait's *History* may be consulted.

of the 28 Āhōm coins in the British Museum in Plate XXV, which was drawn up with the assistance of Śrījūt Golāp Chandra Barua, the translator of the Assam *Buranjis*. Mr. Allan informs me that the unique gold muhur reproduced at the bottom of the plate was bought from a London dealer in 1882. Of the remaining coins, 19 were bought in 1878 from Dr. Foster—presumably the resident of Nazira near Garhgāñw, or some relation of his, who is referred to in the notes of Dr. Blochmann's paper on Kuch Bihār and Assam, to which reference has already been made. The gold coin of Sūklemūn came from the India Office Collection. One of the gold coins of Sūnātpā was bequeathed by Sir C. W. Trevelyan in 1878, while the silver coin of Sūnēphā (Pramatta) was given to the Museum in 1818 by Miss Banks.

In addition to the 8 Āhōm coins in the Indian Museum Collection described by Mr. Vincent Smith (*Indian Museum Catalogue*, I, p. 298), Mr. Botham also possesses 8 coins—a muhur and rupee of Sūklemūn; 5 rupees of Gadhādhara (Sūpātpā), 4 of which are duplicates of those in the Indian Museum; and the fairly common rupee of Pramatta. A few other specimens of Āhōm coins are also found in the local Cabinets already mentioned.

ASSAMESE COINS IN BENGALI SCRIPT PRIOR TO THE TIME OF RUDRA SĪMHA.

Only three such coins are known. Two of them belong to Sūsenphā (more commonly referred to as Pratāpa Sīmha from his successful warfare against the Muhammadans), and the third to Chakradhvaja or Sūpuṇmūn.¹ The former differ markedly from all coins in Āhōm character in being minted in a year far removed from the date of the King's installation: in fact they were struck shortly before Sūsenphā's death, after a long reign of at least 43 years. The inscriptions, which will be found on pp. 313 and 314 of Mr. Allan's paper, appear to afford evidence of greater progress of Vaishnavism in Assam than would be gathered from the *Buranjis*. The invocations to Hari Hara and Hari Harendra (Vishnu and Śiva) on the reverse of the coins are in marked contrast to the coin legends of most of the subsequent kings of Assam in which veneration for Hara Gauri (Śiva and Durgā) is usually expressed, and were it not that the title had already been used by Sūhuṇmūn, we might even be justified in concluding from the fact that Sūsenphā styles himself simply "Surga Nārāyan Deva" (Vishnu) instead of giving his actual name, that he became a Vaishnava shortly before his death. The *Buranjis* record on the other hand that he encouraged the worship of Śiva and persecuted the Mahā-

¹ Sūsenphā means 'The beautiful tiger of heaven' and Sūpuṇmūn 'The tiger of the open country.'

purushiās (a sect of Vaishnavas), but Mr. Gait notes that once in a fit of anger at the death of his son he also persecuted the Brahmins. As Messrs. Vincent Smith and Allan point out, the date of Pratāpa Simha's coins, 1570 *Sāka* (= 1648 A.D.) is decisive in establishing that for some unknown reason the *Buranji* dates for the first half of the 17th century cannot be always trusted. The Assamese historian Kāśinātha was almost certainly right in maintaining that Pratāpa Simha died in 1649 A.D. (and not in 1641), but on the other hand the *Buranjis* are probably correct in stating that Sūseṇphā came to the throne in 1603, as from the Jaintia *Buranji* we learn that he married his daughter to Dhan Mānik, Raja of Jaintia, in 1528 *Sāka* (= 1606 A.D.).¹ How long the two Kings, nicknamed Bhaga Rājā and Nariyā Rājā, who in turn successively followed Pratāpa Simha, reigned, and when Jayadhwaja came to the throne, cannot, in the absence of inscriptions, be determined with any certainty. If, however, as seems probable, Mr. Gait is correct in his reading of the inscription on Jayadhwaja's cannon found at False Point (*Report*, pp. 10 and 29), Jayadhwaja was on the throne in 1658, and there is no difficulty in agreeing with Kāśinātha in assigning his installation to the year 1654, the two previous Kings being allotted reigns of 3 and 2 years respectively. As the coin of the next King, Chakradhwaja, shows, Jayadhwaja must have died soon after the withdrawal of Mir Jumla's troops from Assam in 1663. Cannon inscriptions bearing Chakradhwaja's name and dates 1589 and 1590 *Sāka* (= 1667 and 1668 A.D.) are known (*Report*, p. 29) and as his successor, Sūnātphā (Udayāditya), struck Āhōm coins in 1669 A.D., the duration of Chakradhwaja's reign could not have exceeded 6 years. A cannon at Gauhati, cast in Udayāditya's reign, is dated 1594 *Sāka* (= 1672 A.D.), and, according to the *Buranjis*, he was poisoned in 1673 by Rāmadhwaja who succeeded to the throne. No coins of Rāmadhwaja are known, but there is an Āhōm coin of his successor Sūhun, bearing a date equivalent to 1675.

The coin of Chakradhwaja dated 1585 *Sāka*, which was evidently minted in the year of his installation, exhibits, like those of Pratāpa Simha, Vaishnava influence both in the King's name and the invocation on the obverse to Śiva and Rāma (Śiva and Vishnu). This coin will be found reproduced as Fig. 14 of Plate XXIII, *Contributions I*, as well as in Plate XXIII of Mr. Allan's paper. The absence of coins of Jayadhwaja Simha, who was King of Assam when Mir Jumla invaded the country, is probably due to the seizure of his Garhgānw Treasury by the Muhammadans and the necessity of paying a monetary indemnity (nominally Rs. 3,00,000) besides a dowry of 2,000 gold muhurs and 12,000 silver coins for the Assamese girl who

married Prince Muḥammad ‘Āzam in 1668 (*Report*, p. 17; and Blochmann, *Koch Bihār and Āsām, Journ. Asiatic Soc. of Bengal*, 1872, p. 98). The *Fathiyah-i-’Ibriyah* states that when Garhgānw was entered by Mīr Jumlā in March 1662 A.D., nearly 3 lakhs of rupees in gold and silver were discovered in the Treasury. In the absence of coins, or definite statements in the *Buranjis*, little can be said regarding the progress of Vaishnavism in Jayadhvaja’s reign, but the statement of the *Fathiyah-i-’Ibriyah* is interesting as throwing some light on the current religion of Assam. “He (the King) professes to be a Hindu, but as he believes himself to be one of the great emanations of the Deity, he worships no idols. The inhabitants (of Assam) profess no religion whatever.” (Blochmann, *op. cit.*, p. 80.) In other words we gather that Hinduism in either of its forms had made little headway and that the Assamese as a nation were still Animists. Jayadhvaja had, however, as spiritual guide, a Brahmin who lived at Diwalgānw (*idem*, p. 74), and the title Svarga Nārāyaṇ is not found on his cannon, so that he was perhaps a Śaivite. Subsequently this title reappears on the cannon of Chakradhvaja, Udayāditya and Gadādhara (*Report*, p. 29). In the last-named case the cannon was one of those captured from the Muhammadans in 1682, *i.e.*, the year following the King’s accession, and hence probably before the persecution of the Vaishnavas recommenced. Mr. Gait records gifts to Vaishnava shrines even as late as 1685 and 1686 (*idem*, pp. 6 and 13).

In addition to Assamese coins of Jayadhvaja’s time, we may also anticipate the discovery of Muhammadan coins of 1072 and 1073 A.H., minted at Garhgānw. Khāfī Khān states that Mīr Jumlā forbade the circulation of “Nārāyaṇī” rupees in Assam, as he had minted money with Aurangzib’s name on it, and the minting of rupees and pice is also mentioned by the author of the *Fathiyah-i-’Ibriyah* (Blochmann, *idem*, pp. 99 and 85).

THE COINS OF ASSAM FROM THE ACCESSION OF RUDRA SINHA TO THE CLOSE OF ASSAMESE RULE.

From the death of Udayāditya in 1673 to the accession of Sūpātpā or Gadādhara Sinha in 1681, chaos reigned in Assam, and in the short period of 8 years there were no less than 6 Kings on the throne. None of their coins in Bengali script are known, nor indeed, with the exception of Sūhun’s coin, any in Āhōm characters either; and when a strong King in the person of Gadādhara Sinha established himself on the throne, he does not appear to have minted any but Āhōm coins. It was only with the accession of his son, Rudra Sinha, in 1696 A.D. (*Sāka* 1618) that annual coinage in Bengali script began, and henceforward, with very few exceptions, the type of the coin-

age remained unaltered until the break-up of Assamese rule. To enable the relation of Rudra Simha to the remaining Sovereigns of Assam to be clearly understood, the pedigree on the following page, which is compiled chiefly from Mr. Gait's *History*, may be found useful. The dates (usually quoted in the *Sāka* era to facilitate reference to the coins struck by these Kings) are based upon a comparison of all available coin dates with the duration of each King's reign, as given by Mr. Gait.

From the year of Rudra Simha's installation, Assamese coins began to be produced of a standard that few subsequent issues could even be said to rival. The explanation of this probably lies in the fact that his father Gadādhara Simha (and presumably also himself), during the troublous years before the former's accession to the throne, had taken refuge in Muhammadan territory and both of them subsequently introduced artisans from Kuch Bihār and Bengal to improve the standard of civilisation in Assam. Amongst the workmen introduced by Rudra Simha must have been die-cutters and mechanics from some Muhammadan mint, as it is impossible to believe that the coins that were issued throughout his reign were the unaided work of indigenous craftsmen. In addition to ordinary rupees, muhurs with the same inscription were struck, and there was also an issue of half and quarter rupees. The inscriptions of the three varieties of coins are as follows:—

Rupees.

Obverse.

- (1) *Srī Srī mat*
 - (2) *Svarga deva Rudra*
 - (3) *Simhasya Sā*
 - (4) *ke* (Date)
- 'Simha' facing Right.
“(Coin) of His Heavenly Majesty, Rudra Simha of surpassing beauty, (struck) in *Sāka* (date)”

Reverse.

- (1) *Srī Srī Ha*
 - (2) *ra Gaurī pa-*
 - (3) *d āmbuja madhu*
 - (4) *karasya*
- “A bee on the lotus feet of Hara and Gaurī”

Half Rupees.

- | | |
|-------------------------|-------------------------------|
| (1) <i>Srī Srī</i> | (1) <i>Srī Srī</i> |
| (2) <i>Rudra Si</i> | (2) <i>Sīva pada</i> |
| (3) <i>mhasya</i> | (3) <i>parasya</i> |
| “(Coin) of Rudra Simha” | “Devoted to the feet of Sīva” |

Quarter Rupees.

- | | |
|------------------------------|----------------------------------|
| (1) <i>Srī Srī</i> | (1) <i>Sāke</i> |
| (2) <i>Rudra Simha</i> | (2) (Date) |
| (3) <i>Nripasya</i> | |
| “(Coin) of King Rudra Simha” | “(Struck) in <i>Sāka</i> (date)” |

THE RULERS OF ASSAM FROM GADĀDHARA SĪMHA TO THE PERMANENT ADVENT OF THE BRITISH.

GADĀDHARA SĪMHA.

[1603-1617 *Sāka* (last month.)]*Usurpers.*

1. RUDRA. [1618-1636 (August 1714 A.D.)]

KĀNA.

2. SIVA and his Queens [1636-1666].

3. PRAMATTA [1666-1673].

BARJANĀ GO-HĀIN [passed over as he was pitted with small-pox: killed after revolting in 1691].

4. RĀJĒSVARA [1673-1691].

5. LAKSHMI [1692 (April)-1702 (D.C.)].

(?)

1. RĀMAKĀNTA, son of Moṇā Chief Nāhar [1691].

2. BHARATHA [Coins of 1713-1715 and of 1718-1719 known].

3. SARVĀNANDA [Coins of 1715-1717 known. He is also said to have again revolted in 1727].

11. JOGESVARA. [Son of an Assamese Princess of unknown descent, set up by the Burmese in 1743: duration of rule could not have exceeded three years, as the Burmese were expelled from Assam by the British in 1746 *Sāka* (=1825 A.D.)]

9. BRAJANĀTHA. [Coins of 1739 and 1740 (=February-April 1818) are known]


8. CHANDRA KĀNTA. [Only coins date from 1741 and 1742 when he was under the Burmese.]

7. KĀMALESVARA (KĪNĀRAM.) [Nominally 1717-1732: only known rupee is dated 1730.]

10. PURANDAR. [1818 A.D. Also restored by the British from 1833-1838.]

1 Mr. Gait in his *History* states that Brajanātha was the great-grandson of Rājēsvara, while Prinsep in his *Useful Tables* declares Purandar to have been Rājēsvara's great-grandson. The latter appears more probable from consideration of the dates.

The only available specimens of a quarter-rupee are two of the year 1619,¹ but one other specimen passed through Mr. Gait's hands and is recorded by him to be dated 1616 (*Report*, p. 3). The coin could not be found when enquiries were recently made for it, and as no other coin of the same date is known, the reading was in all probability a mistaken one for 1618. If the Bengali symbol for 8 is viewed from a different angle, it can be easily taken for the Bengali 6, and the mistake probably occurred from the character being written with a slight inclination from

the vertical, thus . Mr. Gait states on p. 163 of his *History* that Gadādhara died in February 1696 A.D., while the *Sāka* year 1618 began on March 25th of that year.² There is, therefore, no reason for thinking that Rudra Siṃha was installed in any other year except that found on the earliest rupee, *viz.*, 1618.

Undated half-rupees are fairly common,³ while rupees of every year of Rudra Siṃha's reign exist. Only single specimens, however, of rupees minted in the years 1619, 1628 and 1629 are known,⁴ and, as may be seen from the following cut, the 1619 coin is peculiar in recording an old name of the early Āhōm kingdom and in having an inscription differing to some extent from the ordinary inscription on Assamese coins.



Silver Rupee.—Weight 172·3 grains. Size—97'.

Obverse.

- (1) *Srī Srīmat*
- (2) *Saumāreśvara (e)*
- (3) *d()va Rudra Siṃha*
- (4) *śya Sāke 1619*
(‘*Siṃha*’ chasing a deer)

Reverse.

- (1) *Srī Srī Hara*
- (2) *Gaurī padāju-*
- (3) *gala kamala*
- (4) *madhukar*

¹ [B. M.] and [B].

² Cunningham, *Indian Eras*, p. 193.

³ For reproduction of one belonging to the Daflating find, *vide* Plate XXVI., Fig. 1.

⁴ [B], [H. E. S.] and [B] respectively.

“(Coin) of His Majesty (*deva*) “ A bee on the lotus of the
 Rudra Simha of surpassing twin feet of Hara and
 beauty, Lord of Saumāra, Gauri ”
 (struck) in *Sāka* 1619 ”

Saumāra ¹ was the former name for the country round Sibsāgar, and the title of Saumāreswara is found in the inscriptions on cannon belonging to Rudra Simha's father, Gadādhara, as well as on one cast in 1594 *Sāka* during the reign of Udayāditya.²

An explanation of the dearth of coins of 1628 and 1629 is found in the fact recorded in the *Buranjis*, that an expedition against the Kachāris started in December, 1706 A.D. Rudra Simha left Rangpur for Rahā on the Kalang, south-west of Nowgong, where he remained until, apparently, February, 1708, when the captured Kachāri and Jaintia Kings were brought before him and both kingdoms annexed. An interesting fact recorded by Mr. Gait in connexion with this campaign ³ is that the booty included 12,000 pieces of silver minted by Muhammadan, Āhōm, Koch and Jaintia Kings. The absence of any mention of Kachāri coins seems to show that until at least the beginning of the 18th century A.D. the Kachāri Kings did not mint coins of their own. The only specimen of Rudra Simha's gold coinage appears to be the muhur in Mr. Botham's Cabinet, dated 1620. This differs from the rupees in having the *dra* of Rudra at the beginning of the third line of the obverse, while the '*Simha*' faces *left* instead of *right* as in the rupees. A reproduction of this coin will be found as Fig. I, Plate XXVII.

No Āhōm coins of Rudra Simha under his Āhōm name Sūkh(r)ānphā, 'the terrible tiger of Heaven,' have yet come to light.

SIVA SIMHA.

The coins of Siva Simha, Rudra Simha's eldest son, constitute the most interesting series of Assamese coins, owing to the fact that he permitted the names of his various wives to appear on the coinage. The succession of coins issued during Siva Simha's reign will be understood from the following Table, which gives the dates of all known rupees. Rupees either of Siva Simha alone, or jointly with one of his wives, exist for every

¹ The old kingdom of Kāmrūp is said in the *Yōginī Tantra* to have been divided into a number of *Piṭhas*, or sacred divisions, each dedicated to Siva and Bhagavati (Durgā). Saumāra, which was one of the more recent additions to these (perhaps dating from Āhōm times), signifies the country of "Him who holds the Moon (on his forehead)," i.e., Siva.

² Gait, *Report*, Appendix I, p. 29.

³ *History*, p. 173.

year. Where letters indicating some Cabinet occur in the Table after a date, only a single specimen of the coin mentioned is known.

Siva Simha alone.	Siva Simha and Phuleśvarī.	Siva Simha and Prama- theśvarī.	Siva Simha and Ambikā.	Siva Simha and Sarveśvarī.
1637				
1638				
1639				
1640 [B]				
1641				
1642				
1643				
1644				
1645				
1646	1646	..	..	..
..	1647	..	..	..
..	1648	..	..	..
..	1649	1649 (and $\frac{1}{2}$ -Re. with 4 on reverse)	..	..
1650 (referred to by Mr. Allan : Cabinet not men- tioned)	1650 (Muhur in posses- sion of Muhammad Hazari of English Bazar, Maldah)	1650	..	..
..	..	1651 (both ordinary ; and square Re. in Per- sian script minted at Garhgānw R.Y. 15)	..	..
..	..	1652	..	..
..	..	1653	..	..
1654 & R.Y. 18.	..	..	1654 & R.Y. 19	..
..	..	..	1655 ,, ,, 19	..
..
..	..	..	1656 ,, ,, 20	..
..	..	..	1656 ,, ,, 21	..
..	..	..	1657 ,, ,, 21	..
..
..	..	..	1658 ,, ,, 22	..
..	..	..	1658 ,, ,, 23	..
..
..	..	..	1659 ,, ,, 24	..
..	..	..	[B ; and $\frac{1}{2}$ -Re. B.M.C.]	..
1659 R.Y. 24. [$\frac{1}{2}$ -Re. I.M.C.]	..	..	..	..

Sīva Sīmha alone.	Sīva Sīmha and Phuleśvarī.	Sīva Sīmha and Prama- theśvarī.	Sīva Sīmha and Ambikā.	Sīva Sīmha and Sarveśvarī.
..
1660 & R.Y.25.
1661 & R. Y. 25 [B.M.C.]	1661 & R.Y.25
..	1661 ,, ,, 26
..
..	1662 ,, ,, 27
..	[B]
..	1663 ,, ,, 27
..
..
..	1664 ,, ,, 29
..	1665 ,, ,, 29
..	1665 ,, ,, 30
..	1665 ,, ,, 30
..	1666 ,, ,, 31

[Pramatta Sīmha's Āhōm coins are dated the 36th year of cycle = *Sāka* 1666; but his ordinary coins start with 1667.]

From this Table the following deductions can be made :—

(a) Although no coin of 1636 is known, the regnal years on the later coins of Sīva Sīmha indicate that he dated his accession from 1636. Mr. Gait also states that Rudra Sīmha died in August 1714 A.D., whereas the *Sāka* year 1637 did not commence till March 25th, 1715. We may, therefore, expect that Āhōm coins of Sīva Sīmha in his Āhōm name of Sūtānphā, 'the peerless tiger of Heaven,' will ultimately be discovered, with date corresponding to *Sāka* 1636.

(b) Mr. Gait, on the authority of the *Buranjis*, states that in consequence of a prediction of the astrologers in 1722 A.D. that his rule would soon come to an end, Sīva Sīmha "declared his chief queen Phuleśvarī, who was also known as Pramatheśvarī, to be Bar Rājā, Chief King... and caused coins to be struck jointly in her name and his."

The reason assigned cannot be regarded as altogether satisfactory for, as Messrs. Vincent Smith and Allan point out, Sīva Sīmha coined in his own name subsequent to 1722. The impression derived from a study of the coins is that Sīva Sīmha's action in permitting Phuleśvarī to mint coins in 1646 *Sāka* was chiefly due to pressure brought to bear on him by a strong-minded woman. A half-coin of Sīva Sīmha and Pramatheśvarī is in the possession of Mr. Botham (*vide* Fig. 2, Plate XXVII) in which the inscription on the obverse ends with a distinct 4. This appears to indicate that in 1649 Pramatheśvarī was asserting her right to place her own regnal year on the coins. The next year Sīva Sīmha is again found minting in his own name.

The only explanation seems to be that a quarrel had taken place between husband and wife in consequence of the previous year's incident and that Śīva Simha, to assert his marital authority, had reverted to coinage in his own name. In the following year, 1651, a compromise seems to have been arrived at, for from this year date the square coins in Persian script minted at Garhgānw, in which the regnal year of the King (15) duly appears, but the coins have the curious legend *Ba hukm Begam Pramathēśvarī Shāh*, i.e., they were struck in the name of Śīva Simha but "by order of Queen Pramathēśvarī."¹ The next and following year, however, the coins again appear in the name of Pramathēśvarī "Chief queen (*mahishā*) of King Śīva Simha" and the regnal year is omitted. The non-existence of coins of Śīva Simha and Pramathēśvarī after 1653 confirm the statements of the *Buranjis* that she died in that year. The *Buranjis* then narrate that the King married Phuleśvarī's sister Deopadī and made her Bar Rājā, with the name Ambikā. Before, however, Ambikā was installed, Śīva Simha again issued coins in his own name—this time with the addition of the regnal year—and regnal years continued to appear on the coins until the end of Śīva Simha's reign. Ambikā's coins end in 1659—R. Y. 24 (= 1737 A.D.), so that this date, and not 1663, must be taken as the date of Ambikā's death. Coins of Śīva Simha in his own name again re-appear for about a year, but in 1661 (R. Y. 25) he married Enādarī ('Nobody's darling'), who was re-named Sarveśvarī, and she appears to have survived him. Both Ambikā and Sarveśvarī on their coins simply style themselves "the much beloved (*udvallabha*) of King Śīva Simha."

(c) In the absence of the *Buranjis*, the conclusion might reasonably have been drawn that Phuleśvarī and Pramathēśvarī were different people, and it is evident from the coins that Phuleśvarī did not cease altogether to use her old name until at least two years after she adopted the name Pramathēśvarī. On the other hand the further story of the *Buranjis* that the lady was a fanatical advocate of *Sākta* Hinduism and forcibly converted several Gosāins to *Sāktism*, is supported by the change in name. Phuleśvarī is another name for Ratī, the wife of Kāma, the Hindu Cupid, while Pramathēśvarī is a synonym of Durgā. A devotee of the goddess Durgā who happened to be married to a King called Śīva who arrogated to himself the title of God (*Svarga deva*); would naturally be inclined to change her name to one of the names of Durgā. Her example in this respect was followed by her successors, whose names on their coins are also synonyms of Durgā. A reproduction of Phuleśvarī's rupees of 1649 will be found as Fig. 2, Plate XXVI of this paper, and the obverse of a rupee of the same year with legend

¹ Vide *Indian Museum Catalogue*, I, p. 301; and Allan, *Num. Chron.*, Ser. IV, Vol. IX, Plate XXIV, Fig 1.

Sīva Siṃha and Pramathesvarī is given by Mr. Allan as Fig. 15, Plate XXIII, of his paper. On Plate XXVI will also be found a reproduction of a half-coin of Sarvesvarī, dated R.Y. 29. Of Mr. Botham's coins the following, reproduced on Plate XXVII, may be referred to. The curious quarter-coin with apparently regnal year 4 on the reverse struck in the name of Pramathesvarī as consort of Sīva Siṃha; the rupee of Sīva Siṃha alone dated 1654 and R.Y. 18; a half rupee of Ambikā dated R.Y. 19 (the latter may be compared with the similar coin of her successor, from the Daffating find already referred to); and the last rupee of Sīva Siṃha's reign, dated 1666 and R.Y. 31, that was issued by Sarvesvarī. It may also be noted in connexion with Sīva Siṃha's coins that he began by following his father in using the old form of *, 'ॐ,' on his coins. The more modern form as already employed on the coins of Pratāpa and Chakradhvaja re-appeared, however, as soon as Phuleśvarī began to strike coins, and thenceforward the old form is no longer found.¹ The square coin of 1651 seems to have been modelled on the coins of Manipur, as Prinsep (*Useful Tables*, p. 274) mentions square coins of the Manipur King Charairongba, dating apparently from 1634 *Sāka*.

The fullest account of the coinage of Sīva Siṃha and his Queens will be found in Mr. Allan's paper. In addition to the usual coins, quarter-muhurs are also found. The inscriptions follow in the main those of Rudra Siṃha, but in the Queens' coins, owing to the necessity of referring to two people, the phraseology is somewhat different. The quarter-coins of the Queens are either undated or give only the current regnal year of the King.

PRAMATTA SĪMHA.

The coinage of this King needs no special reference. His Sanskrit coinage starts with rupees of 1667, of which the reverse reads *Śrī Śrī Hara Gaurī charaṇa kumala madhukarasya*. This means the same as the inscription on the older coins. From the coin in Ahōm script already referred to, he appears, however, to have been installed immediately after Sīva Siṃha's death in 1666. Half-muhurs occur for the first time, but there is no reason to suppose that they were not also minted by his immediate predecessor. The muhur of 1669 in Mr. Botham's Cabinet is struck from the same die as the rupees of that year. Pramatta's last coins are dated 1673.

RĀJESVARA SĪMHA.

The coinage of this King is interesting for the variety that it displays. At his accession in 1673 he struck money in Ahōm

¹ Cf. Fig. 10, Sīva Siṃha's rupee dated 1644, with Fig. 14—Phuleśvarī's rupee dated 1646—Plate XXIII of Mr. Allan's paper, *Num. Chron.*,

script, as is shown by the unique gold muhur reproduced in Plate XXV. This was followed up in the next year by a square rupee in Persian characters minted at Rangpur, in addition to ordinary coins.¹ In 1675 came an octagonal rupee in Nāgrī script with an invocation to Maheśvarī (Durgā) on the obverse.² From 1678 dates the square quarter-muhur in the Cabinet of Mr. Botham, which marks a new departure in coins with Assamese script, and, in the same collector's Cabinet is also found an eighth-muhur which seems to be dated on the obverse either R.Y. 4 or R.Y. 7. Rājeśvara's zeal for new types of coinage was not even yet satisfied, as in 1785 we find him issuing from Rangpur an octagonal rupee in Persian script, the inscription being identical, save as regards date, with the square rupee of 1674. Another peculiarity of the reign is the appearance of a sixteenth of a muhur and a sixtieth of a rupee, both undated, with *Śrī Rājeśvara* on the obverse and *Simha Nripasya* on the reverse.³ The last known coin of Rājeśvara is dated 1690, but Mr. Gait (*History*, p. 182) reports an expedition against the Jaintias which seems to have happened in the following year just before Rājeśvara's death.

[RĀMA KĀNTA—USURPER.]

LAKSHMĪ SĪMHA.

On the death of Rājeśvara disputes arose as to the succession, one party being in favour of Rājeśvara's eldest son, and another supporting the claims of Lakshmī Sīmha, the last of the sons of Rudra Sīmha. Doubts were cast on the legitimacy of the latter, and although he was selected, an insult offered by his minister, the Bar Barua, to the Moāmariā (Vaishnava) Gosāin caused an immediate insurrection. Lakshmī was captured and imprisoned, and, according to the *Buranjis*, a usurper called Rāma Kānta was placed on the throne. This man is said to have minted coins for some months (*Sūka*, 1691), but none of them have yet been recorded. The royalists ultimately succeeded in ejecting the Vaishnavas, and rescuing Lakshmī just as he was about to be executed. Rāgha, the Vaishnava general, was assassinated in the beginning of 1692, and soon after Rāma Kānta and the Moāmariā Gosāin were captured and tortured to death. Lakshmī Sīmha was then installed as King. In corroboration of this story, we find no coin of Lakshmī Sīmha of the year 1691, the full coinage commencing in the following year, and it is curious to note that in spite of the savage persecution of the Moāmariās

Ser. IV, Vol. IX; *vide* also this paper, Plate XXVI, Figs. 1 and 2 and Plate XXVII, Figs. 1 and 3.

¹ Allan, Plate XXIV, Fig. 11.

² *Vide I.M.C.*, Plate XXIX, Fig. 6.

³ *Vide* for the former, Allan, Plate XXIV, Fig. 13.

that followed Rāgha's death, Lakshmī Siṃha appears to have attempted to conciliate them in the first year of his reign by minting, in addition to the ordinary rupees with Hara Gaurī on the reverse, a rupee with *Hari Hara* (Vishnu and Śiva), of which a specimen is in the possession of Mr. Botham.¹ In 1692 he also issued a square quarter-muhur in imitation of the quarter-muhurs of his brother Rājeśvara.² For the rest of his reign, the coinage is ordinary. The reverse of the rupees has a slightly fuller inscription than those of his predecessors, and reads *Śrī Śrī Hara Gaurī charaṇāravinda makaranda madhukarasya* ('A bee on the nectar of the lotus feet of Hara Gaurī'); and *Narendra* (King) occurs as a synonym of *Nripa* on the obverse of his half-muhurs and half-rupees. The last coins known of this King are quarter-rupees minted in the year 1702.

Lakshmī Siṃha's Āhōm name was Sūñē-uphā ('the Colossal Tiger of Heaven'), but he does not appear to have struck any Āhōm coins.

GAURĪNĀTHA SIṂHA.

The son of Lakshmī Siṃha ascended the throne after assuming the Āhōm name Sūhitpaṇphā ('the Gladsome Tiger of the Wide Heaven'), but no specimen of his Āhōm coinage has yet come to light. The first known Sanskrit coin dates from the year 1703, but from the regnal years on his later coinage, it is certain that he came to the throne in 1702. Mr. Gait also mentions that Lakshmī Siṃha died in December, 1702. The following tables show how well the coinage of this period illustrates the history of Gaurīnātha's troubled reign. The dates are those found on rupees, except where otherwise stated.

¹ *Vide* Plate XXVII, Fig. 10; *cf.* Plate XXVI, Fig. 4, for the ordinary rupee of that year.

² *Vide* *Album*, Plate XXIV, Fig. 17.

Coin dates of Gaurinātha as well as those of Rebels against his authority.

GAURINĀTHA.	BHARATHA (So-called Rājā of Rangpur).	SARVĀNANDA (Chief of the Morāns at Bengmara; so-called Rājā of Matak).
[Lakshmi—Quarter-coin, 1702.]		
1703.		
1704.		
1705.		
1706, R.Y. 5.		
1707, R.Y. 6.		
1708, R.Y. 7.		
1709, R.Y. 8.		
[1710] Half-Rupree R.Y. 9. [S.C.]		
1711 [Rupree and Quarter- Muhur B.M.C.; $\frac{1}{2}$ Re. B.]		
1712 [$\frac{1}{2}$ Re. R.Y. 11, B.M.C.]		
[1713] $\frac{1}{2}$ -Re. R.Y. 12 [B.]	1713 [B.M.C.; and $\frac{1}{2}$ -Re. B.]	....
[1714] R.Y. 13; $\frac{1}{2}$ -Muhur [B.M.C.]; and $\frac{1}{2}$ Re. [B.]	1714 [B.M.C.]	....
1715 [$\frac{1}{2}$ -Re.; and $\frac{1}{2}$ Re. R.Y. 14, B.]	1715.	1715 (in Mr. Burn's Cabinet).
1716 R.Y. 1 } [S.C.]		
1716 mint <i>Disai</i> }	....	1716.
1717; and $\frac{1}{2}$ Re. of R.Y. 16	....	1717.
....	1718.	....
....	1719.	....
[Kamaleśvara's coin of 1720]	....	....

Coinage of Gaurinātha in the Daflating find.

Year.	Rupees.	Half-Rupees.
1703	1	....
1705	3	....
1706	2	4 (R.Y. 5)
1707	7	14 (R.Y. 6)
1708	13	10 (R.Y. 7)
1709	6	9 (R.Y. 8)
1710	....	9 (R.Y. 9) ?
1716 (=1794 A.D.)	46	6 (<i>Disai</i>) ?
1717	1	16 (R.Y. 16)
R.Y. 1	(3; included in 1716)	34
Undated	....	414
TOTAL	79	516

The persecution of the Moāmariās that was initiated after an attack on the King in 1704 ultimately led in 1708 to a serious revolt, and the *Buranjis* state that Gaurinātha fled from Rangpur, the capital, to Gauhati, leaving the Burhā Gohāin behind at Jorhāt to cope with the rebels. Fighting went on for several years, and in 1713 Bharatha Simha, the leader of the Moāmariās at Rangpur, showed by his action in establishing a mint that he regarded Gaurinātha as no longer on the throne. It would appear moreover from the great rarity of the coins of the intervening years that Gaurinātha, practically speaking, issued no coins for the entire period from 1710 to 1716, when he was re-instated at Rangpur by the British.

The minting of coins by Bharatha may also supply another reason, beyond that given by Mr. Gait, for the action of Gaurinātha in appealing to the British in 1714. At the end of 1792 A.D. (= *Sāka* 1714) Captain Welsh, who had been deputed with six companies of sepoy to help Gaurinātha, met the King fleeing from Gauhati, which had been raided by some Moāmariā Dōms, and shortly afterwards Gauhati was re-occupied. Here Captain Welsh remained for more than a year, busy with the pacification of Lower Assam, while in Eastern Assam, as the coins show, Bharatha continued to reign. Sarvānanda also appears to have begun to strike coins at this time. In January, 1794 (*Sāka* 1715), an advance was made against the Moāmariās. Jorhāt, where the Burhā Gohāin had maintained himself ever since Gaurinātha's flight in 1708, was reached in the middle of February and Rangpur entered on the 18th of March. Shortly afterwards a Durbar of re-installation was held. Mr. Gait appears to consider that the Durbar took place in March, but as the coins that were presumably struck on this occasion bear the date 1716 and R.Y. 1, while the *Sāka* year 1716 does not commence until April 1st, 1794 A.D.¹, either the Durbar was held after April 1st, or the coins were slightly post-dated. In consequence of imperative orders from the new Governor-General, the British troops three months later were withdrawn from Assam, whereupon the Moāmariās again compelled Gaurinātha to forsake Rangpur. Presumably these were the followers of Sarvānanda, as, from the disappearance of his coins, Bharatha Simha would seem to have been crushed in Captain Welsh's final operations against the Moāmariās. Mr. Botham has pointed out to me that a corroboration of Gaurinātha's capital having then become Jorhāt is found in the $\text{ᱡ} = \text{ᱢ}$ (Di) for *Disai*, the Assamese name for Jorhāt that occurs at the bottom of the obverse of certain other coins of this year. Another curious variety of the coins bearing the date 1716, is one in the possession of Mr. Botham with the Bengali number ৬৮ (68) at the bottom

¹ Cunningham, *Indian Eras*, p. 196.

of the reverse. Mr. Botham suggests that this may refer to Gaurinātha's age at the time, and the probability of the suggestion is evident from the following argument derived from the *Buranji* dates. Lakshmī Simha was the youngest son of Rudra Simha who died in 1636. Hence Lakshmī when he died in 1702 must have been at least 66. He is not likely to have had a son before he was 15 or 16, so that Gaurinātha, his eldest son, was probably not born till 1652. If Gaurinātha happened to have been born in this year, his age in 1716 would have been 64, which is a sufficiently close approximation to 68 for us to assume that Mr. Botham's supposition is correct. It follows from this that Gaurinātha was born in 1648, while the age of Lakshmī Simha (67) at the time of his death would appear to have been understated by Mr. Gait.¹ Gaurinātha evidently ceased to acknowledge his indebtedness to the British as soon as they left the country and the half-coins of the following year clearly bear R.Y. 16. Rupees of 1717, like the later ones of 1716, have no regnal year number.

With regard to the muhur of 1718, noted by Mr. Allan as being in some other Cabinet than that of the British Museum, it is, indeed, possible that this coin is a posthumous one struck by the Burhā Gohāin while he was arranging for the accession of Kināram (Kamaleśvara); but as Gaurinātha is stated to have died on December 19th, 1795, while the *Saka* year 1718 only began on April 9th, 1796, it is hardly likely that Gaurinātha's death could have been concealed for nearly 4 months. In this case, therefore, 1716 should probably be read for 1718, just as with the first quarter-rupee of Rudra Simha there was confusion between 1616 and 1618.

In addition to the coins already catalogued by Messrs. Vincent Smith and Allan with obverse reading *Śrī Śrī Hara Gaurī charaṇāravinda* (or *kamala*) *makaranda madhukarasya*, Gaurinātha introduced various changes in the inscription on the reverse of his coins in the year 1706. The chief one is a complete reversion to the inscriptions found on Rudra Simha's rupee.

Obverse.	Reverse.
(1) <i>Śrī Śrī mat sva</i>	(1) <i>Śrī Śrī Ha</i>
(2) <i>rga deva Śrī Gau</i>	(2) <i>ra Gaurī pa</i>
(3) <i>rīnātha Simhasya</i>	(3) <i>d ambuja madhu</i>
(4) <i>Sāke 1706</i>	(4) <i>karasya</i>
(5) 5	(‘ <i>Simha</i> ’ facing Right.)
	[S. C. and B.]

The Dailating find also placed the Shillong Cabinet in possession of a unique series of half-rupees, many with Regnal

¹ *History*, p. 188. There is also contradiction between the statement made on this page and that found at the top of p. 184.

Years, and others with marks which are apparently mint marks. These marks include ॐ, ॐ, ॐ, ॐ, ॐ, ॐ, and Maltese crosses of various sizes, mostly at the bottom of the obverse. Coins of Regnal Years 1 (at bottom of reverse, and also at bottom of both obverse and reverse), 5, 6 (one at bottom of obverse, and the other at bottom of reverse), 7, 8, 9, and 16 occur. A reproduction of a curious half-coin with regnal year 9 at the bottom of the obverse and ॐ at the bottom of the reverse is given as Fig. 5, of Plate XXVI; and six half-rupees were also found at Daflating with ॐ ('Disai') at the bottom of the obverse, which presumably date from either 1716 or 1717.

One-thirty-second muhurs and $\frac{1}{32}$ -rupees also appear for the first time among the coins of Gaurinātha, and in certain cases Gauri is misspelt (गोरि instead of गौरि). A similar mistake also occurs in the half-rupee of Jogeśvara (*vide* Plate XXVI, Fig. 13), as well as in that of Lakshmī Simha (लक्ष्मि instead of लक्ष्मी).

COINS OF BHARATHA, SARVĀNANDA AND KAMALEŚVARA (KINĀRAM).

The coins of the two usurpers, Bharatha Simha at Rangpur and Sarvānanda Simha at Bengmara, are characterised by the introduction in both cases, on the reverse, of Krishna instead of Hara Gauri, while Bharatha Simha on the obverse of his coins claims to be of the lineage of Bhagadatta, the famous King of Prājyōtishpur. All of Bharatha Simha's rupees are stated by Mr. Allan to bear the same inscription, but in the case of Sarvānanda, coins are found with a different one to that given by Mr. Allan on p. 327 of his paper. Specimens of both types are reproduced as Figs. 6 and 7 of Plate XXVI, and it will be seen that the Shillong coin of 1716 differs from the coin of 1717 by reading *Nripasya* for *Narendrasya*, while the three last lines of the reverse read (2) *charana kamala*, (3) *makarandama*, (4) *dhukarasya* instead of (2) *padapadmadvanda*, (3) *makarandabrinda*, (4) *madhukarasya*. Three different half-rupees of Sarvānanda also occurred in the Daflating find and are now in the Shillong Cabinet. They will be found reproduced in Figs. 8, 9 and 10 of Plate XXVI at the end of this paper. The conclusion of the inscription on the obverse reads either *Narendrasya* or *Nripasya*, while the three variations in the reverse are *Srī Srī Krishna pada parāyanasya*, *Srī Srī Krishna madhukarasya* and *Srī Srī Krishna charana madhukarasya*.

The coins of Bharatha Simha of 1718 and 1719 prove his identity with the "Bharathi Rājā" mentioned by Mr. Gait as having broken into revolt immediately after the announcement of Gaurinātha's death, and he appears to have taken the place

of Sarvānanda as leader of the Moāmariās, as no coins of Sarvānanda are known subsequent to 1717. Bharatha's insurrection probably accounts for the non-existence of any coins of Kamaleśvara, Gaurinātha's successor, before 1720, and the minting of coins in this year raises a question as to whether the date of Bharatha's death (1721) is correctly given by the *Buranjis*. Marsden (*Numismata Orientalia*, p. 777) states that Kamaleśvara, who is said to have been an illegitimate descendant of Kāna, the second son of Gadādhara, was never properly installed, and although he survived until 1732 it is curious that the only coins known that bear his name are those dated 1720.¹ From Mr. Gait's account of his reign there seem to have been constant rebellions, and in 1727 at the invitation of the Morān Moāmariās, who had again revolted under Sarvānanda Simha, detachments of the Burmese for the first time were brought into the country to fight against the adherents of the Burhā Gohāin.

CHANDRA KĀNTA, BRAJANĀTHA, PURANDAR AND
JOGĒŚVARA.

According to the *Buranjis*, the Burhā Gohāin placed Chandra Kānta, the youthful brother of Kamaleśvara, on the throne when the latter died, but none of his coins are known except those of 1741 and 1742. Five years after Chandra Kānta's nominal accession, one Badan Chandra, a Bar Phukan whom the Burhā Gohāin wished to dismiss, fled first to Calcutta and then to Burma, where in 1738 *Sāka* he induced the Burmese King to send an army against the Burhā Gohāin, on the pretence that the Burhā Gohāin had usurped all the authority of the Assam King. The Burmese army of invasion twice defeated the Assamese armies, but left the country in the following year on payment of an indemnity. On their departure, the Assamese ministers quarrelled amongst themselves, and the son of the old Burhā Gohāin, who had died in the year of the Burmese invasion, proclaimed Brajanātha, a grandson or great-grandson of Rajésvara Simha, to be King, in *Sāka* 1739 (February 1818). "Brajanātha at once caused coins to be struck in his own name, but it was now remembered that he was ineligible for the throne as he had suffered mutilation, and his son Purandar Simha was, therefore, made King instead of him. Chandra Kānta was seized and his right ear was slit in order to disqualify him from again sitting on the throne" (Gait). Intelligence of these events quickly reached Burma, and on the arrival of a fresh Burmese army, about a year later (February 1819, or the end of 1740 *Sāka*), Purandar Simha fled to Gauhati and Chandra Kānta was again placed on the throne by the Burmese. He remained a nominal

King for about two years, during which time he struck coins dated 1741 and 1742 *Sāka*, but at last, "anxious about his own safety, in April, 1821, he fled first to Gauhati and then to British territory." Finding that they could not induce him to come back, the Burmese placed another prince of unknown descent called Jogeśvara on the throne.

The coins of Brajanātha show that Mr. Vincent Smith's statement that he only ruled in February, 1818, is not correct, for coins of both 1739 and 1740 exist. As the *Sāka* year 1740 did not begin until 7th April, 1818,¹ it seems probable that he was actually on the throne for about three months. The Daflating find included a half-coin belonging to him with apparently the mint mark ₹ on it.² This appears to indicate that Brajanātha minted at Rangpur. In addition to Chandra Kānta's gold muhur of 1741, given by Mr. Allan, rupees of 1742 are also in the Cabinets of Col. Gurdon and Mr. Botham, while Mr. Botham also possesses a quarter-rupee of 1742. No rupees are known of Jogeśvara, the prince whom the Burmese placed on the throne when Chandra Kānta took refuge with the British at the beginning of 1743 *Sāka*, and who, according to Prinsep, was "raised by the Assamese wife of an Ava monarch"; but Mr. Botham has a quarter-rupee struck in that year. Undated half-coins also occur, and one of those from the Daflating find is reproduced as Fig. 13, Plate XXVI. During Jogeśvara's nominal reign the Burmese appear also to have experimented in coinage of their own (*vide* the rupees with a pig on the reverse, which were described in the previous paper of this series, *Journ. Asiatic Soc., Bengal*, 1910, p. 164).

Both Chandra Kānta and Purandar Simha continued independently their struggles with the Burmese until the British intervened in 1824 A.D. (1746 *Sāka*). The British campaign resulted in 1826 in the annexation of Lower Assam, and for eight years Upper Assam was also administered by the British. The whole of Upper Assam, except Sadiya and Matak, was then handed back to Purandar Simha. It continued in his possession, with Jorhāt as the capital, until October 1838, when "his administration having proved a failure in all respects, he was deposed and pensioned." No coins of this ruler are known to exist, either for his short reign before the Burmese invasion, or after he was temporarily re-instated by the British.

¹ Cunningham, *op. cit.*, p. 187.

² *Vide* Plate XXVI, Fig. 11, *postea*.

APPENDIX.

PLATE XXVI.

Coins of the Daflating Find.

1. RUDRA SĪMHA—*Half-Rupce*—Size ‘65”. *Weight*—87·2 grains.

Obverse.

Śrī Śrī
Rudra Śi
mhasya

Reverse.

Śrī Śrī
Śiva pada
parasya

No ornamentation or date.

Another specimen in the Daflating find had a half flower to the right of the *Śrī* on obverse, and a dot to the right of the *Śrī* on reverse as in the B. M. specimen.

2. ŚIVA SĪMHA AND PHULEŚVARĪ—*Rupce*—‘88”.

Weight—170·5 grains.

Śrī Śrī Śiva
Sīmha Nripa Mahi
shī Śrī Phuleśva
rī devyāh

Śrī Śrī Hara
Gaurī pada pa
rayanayāh
Sāke 1649
(‘*Sīmha*’ R.)

3. ŚIVA SĪMHA AND SARVEŚVARĪ.—*Half-Rupce*—‘72”

Weight—85·2 grains.

Śrī Śrī Śi
va Sīmha Na
resvara

Udvala
bha Śrī Sarve
śvarī devīnām

4. LAKSHMĪ SĪMHA—*Rupce*—‘86”. *Weight*—175·0 grains.

Śrī Śrī Svarga
deva Śrī Lakshmī
Sīmha Nripasya
Sāke 1692
(‘*Sīmha*’ R.)

Śrī Śrī Hara
Gaurī charaṇāra
vinda makarānda
madhukarasya

5. GAURĪNĀTHA—*Half-Rupce*—‘65”. *Weight*—87·2 grains.

Śrī Śrī Gau
rīnātha Śi
mha Nripasya

Śrī Śrī Ha
ra Gaurī pa
da parasya

6. SARVĀNANDA—*Rupee*—·95". *Weight*—178·4 *grains*.

Obverse.

*Śrī Śrī Svarga
deva Śrī Sarvāna
nda Śimha Nripasya
Śāke 1716
(‘ Śimha ’ L.)*

Reverse.

*Śrī Śrī Krishna
charaṇa kamala
makaranda ma
dhukarasya*

7. SARVĀNANDA—*Rupee*—·95". *Weight*—175·2 *grains*.

*Śrī Śrī Svarga
deva Sarvānanda
Śimha Narendrasya
Śāke 1717
(‘ Śimha ’ L.)*

*Śrī Śrī Krishna
pada padmadvanda
makaranda vrinda
madhukarasya*

“(Coin) of His Heavenly
Majesty King Sarvānanda
Śimha, (struck) in *Śāka* 1717”

“A bee on the abounding
nectar of the twin lotus feet of
Śrī Krishna”

8. SARVĀNANDA—*Half-Rupee*—·70". *Weight*—86·3 *grains*.

*Śrī Śrī Sarvā
nanda Śimha Na
rendrasya*

*Śrī Śrī Kri
shna pada pa
rayanasya*

9. SARVĀNANDA—*Half-Rupee*—·65". *Weight*—81·8 *grains*.

*Śrī Śrī Sa
rvānanda Śi
mha Nripasya*

*Śrī Śrī
Krishna madhu
karasya*

10. SARVĀNANDA—*Half-Rupee*—·67". *Weight*—88·2 *grains*.
As on No. 9.

*Śrī Śrī Kri
shna charaṇa ma
dhukarasya*

11. BRAJANĀTHA—*Half-Rupee*—·64". *Weight*—84·1 *grains*.

*Śrī Śrī Bra
janātha Śi
mha Nripasya*

*Śrī Śrī Rā
dhā Krishna pa
da parasya
Ra 1 (? Rangpur, R Y. 1)*

12. CHANDRA KĀNTA—*Rupee*—·85". *Weight*—174·8 *grains*.

*Śrī Śrī Svarga
deva Śrī Chandra Kā
nta Śimha Narendrasya
Śāke 1741
(‘ Śimha ’ L.)*

*Śrī Śrī Hara
Gaurī charaṇāra
vinda makaranda
madhukarasya*

13. JOGESVARA—*Half-Rupee*—64". Weight—87.4 grains.

Obverse.

*Srī Srī Jo
geśvara Śi
mha Nripasya*

Reverse.

*Srī Srī Ha
ra Gaurī pa
da parasya*

In other specimens the Gaurī is spelt correctly (গৌরী instead of গৌরি).

PLATE XVIII.

Coins in the Cabinet of Mr. A. W. Botham, C.S.

1. RUDRA SĪMHA—*Muhur*—77". Weight—171.1 grains.

*Srī Srī mat
Svarga deva Ru
dra Sīmbasya S'
āke 1620
(‘Sīmbha’ L.)*

*Srī Srī Ha
ra Gaurī pa
dambuja madhu
karasya*

2. SIVA SĪMHA and PRAMATHESVARĪ—*Quarter-Rupee*—55".

Weight—44.0 grains.

*Srī Śi
va Sīmbha
Nripa*

*Jāyā Srī
Pramathe
śvarasya (?) 4*

3. SIVA SĪMHA—*Rupee*—9". Weight—174.6 grains.

*Srī Srī ma
t Svarga deva Śi
va Sīmbha Nripasya
Sāke 1654
18*

*Srī Srī Hara
Gaurī pada
mbuja madhu
karasya
(‘Sīmbha’ R.)*

4. SIVA SĪMHA and AMBĪKĀ—*Half-Rupee*—67".

Weight—86.9 grains.

*Srī Srī Śi
va Sīmbha N
reśvara*

*Udvalla
bha Srī madambi
kā devinām
19.*

5. SIVA SĪMHA and SARVEŚVARĪ—*Rupee*—‘98’.*Weight*—168·3 *grains*.

Obverse.

Srī Srī Siva
•Sīmha Nripa udva
llabha Srī Sarve
śvarī devīnām
 13

Reverse.

Srī Srī Hara
Gaurī pada
parāyanānam
Sāke 1666
 (‘*Sīmha*’ L)

6. RĀJEŚVARA—*Quarter-Muhur*—‘53’.*Weight*—45·7 *grains* (ringed).

Srī Srī Rā
jeśvara Si
mha Nripasya

Sāke
 16·8

7. RĀJEŚVARA—*Quarter-Muhur*, *Sq.*—‘50’. *Weight*—41·4 *grs.*[*Inscription identical with that of octagonal Quarter-Muhur.*]8. RĀJEŚVARA—*Eighth-Muhur*—‘42’. *Weight*—20·6 *grains*.

Srī Srī Rā
jeśvara

Sīmha
Nripasya

9. RĀJEŚVARA—*Eighth-Muhur*, *Sq.*—‘34’. *Weight*—21·5 *grains*.[*Inscription as on octagonal Eighth-Muhur, but trace of Regnal year 4 or 7 at bottom of obverse.*]10. LAKSHMĪ SĪMHA—*Rupee of 1692*—‘85’. *Weight*—174·6 *grs.*

The same as the other rupees
 of 1692 (*cf.* Plate XXVI,
 Fig. 4)

Srī Srī Ha
ri Hara parama
pada padma pa
rayanasya
 “Devoted to the excellent
 lotus feet of Hari Hara
 (Vishnu and Śiva)

11. KAMALEŚVARA—*Rupee*—‘9’. *Weight*—174·4 *grains*.

Srī Srī Svarga
deva Srī Kamaleśva
ra Sīmha Narendrasya
Sāke 1720
 (‘*Sīmha*’ L)

Srī Srī Hara
Gaurī charana ka
mala makaranda
madhukarasya

CONSONANTS.			VOWELS.			Forms of Syllables found on the Āhom Coins in the British Museum Cabinet.		
No.	Character.	Sound.	No.	Character.	Sound.	Vowel No.	Character.	Sound.
I	m	kā	1	ṛi (a)	(ā)	1	ṛi; ṛi;	lāk; pāt;
II	n	khā	2	ṛi;	ā		ṛi; ṛi;	sūn; kâp;
III	o, ɔ	gā	3	ṛi;	ā		ṛi; ṛi;	kāt; chām.
IV	ṣ	ghā	4	ṛi	i (sometimes e as in "met").	2	ṛi; ṛi;	tā; rā.
V	ṭ	ñā (ngā)				3	ṛi; ṛi.	phā.
VI	ṭ	chā	5	ṛi	i	4	ṛi; ṛi.	pin;
VII	ṭ	jā, ña	6	ṛi	u		ṛi; ṛi;	chîn; len;
VIII	ṭ	jhā	7	ṛi;	ū		ṛi.	neñ.
IX	ṭ	ñā	8	ṛi (b)	e (as in "met")	5	ṛi; ṛi.	nî; nî;
X	ṭ	tā	9	ṛi	ē		ṛi; ṛi.	pî; sînā.
XI	ṭ	thā	10	ṛi	o (as in "off")	6	ṛi; ṛi;	hûn; hûn;
XII	ṭ	dā	11	ṛi;	ō (as in "moon")		ṛi;	khun;
XIII	ṭ	dhā	12	ṛi;	ū (e)		ṛi; ṛi.	khut.
XIV	ṭ	nā	13	ṛi	ai	8	ṛi	rem.
XV	ṭ	pā	14	ṛi	ao	12	ṛi; ṛi;	ûs; tû;
XVI	ṭ	phā	15	ṛi (d)	ī-u		ṛi; ṛi;	chû;
XVII	ṭ	lā, wā	16	ṛi (e)	i-u		ṛi;	mûu;
XVIII	ṭ	bhā	17	ṛi;	ā (as in "all")		ṛi; ṛi.	k(l)ch; p(l)ek.
XIX	ṭ	mā, (final m).	18	ṛi	oi (as in "boil")	13	ṛi; ṛi.	rai.
XX	ṭ	rū			Satkār, or mark of final consonant = Bengali <i>haranta</i> and Sanskrit <i>visarga</i> . It is omitted in the coins of Pramatta and Rājeshvara.]	14	ṛi; ṛi.	chao; kao.
XXI	ṭ	lā				15	ṛi; ṛi.	hū-u; kū-u.
XXII	ṭ	sa				17	ṛi; ṛi;	dân; ph(r)ân.
XXIII	ṭ	hā					ṛi; ṛi.	nât.
						18	ṛi	boi.

(a) "Is used like the *alif* of Hindostani, merely as a fulcrum for carrying the other vowels when they are initial" (Grierson). The inherent vowel sound in Āhom being *a*, vowels have only to be indicated when a consonant has a different vowel sound than *a*. (b) In combination, the prefix of this vowel is omitted. (c) In combination, if the suffix be omitted, this vowel sometimes stands for *le* as in "lend". (d) Only found in open syllables. (e) In combination the suffix is dropped.

The consonant and vowel columns give the forms of the letters as found in the Āhom *Baranjis*.

ĀHOM MUHUR OF RĀJESVARA SĪMĪA (SÜREMPHĀ).

(CABINET OF THE BRITISH MUSEUM—UNIQUE).

OBVERSE.

- (1) *Chao*, the God, *sū*, tiger.
 (2) *rem*, border, *phā*, heaven,
pin, became, (3) *khān*, King,
lākni, year, (4) *Raisinā*.

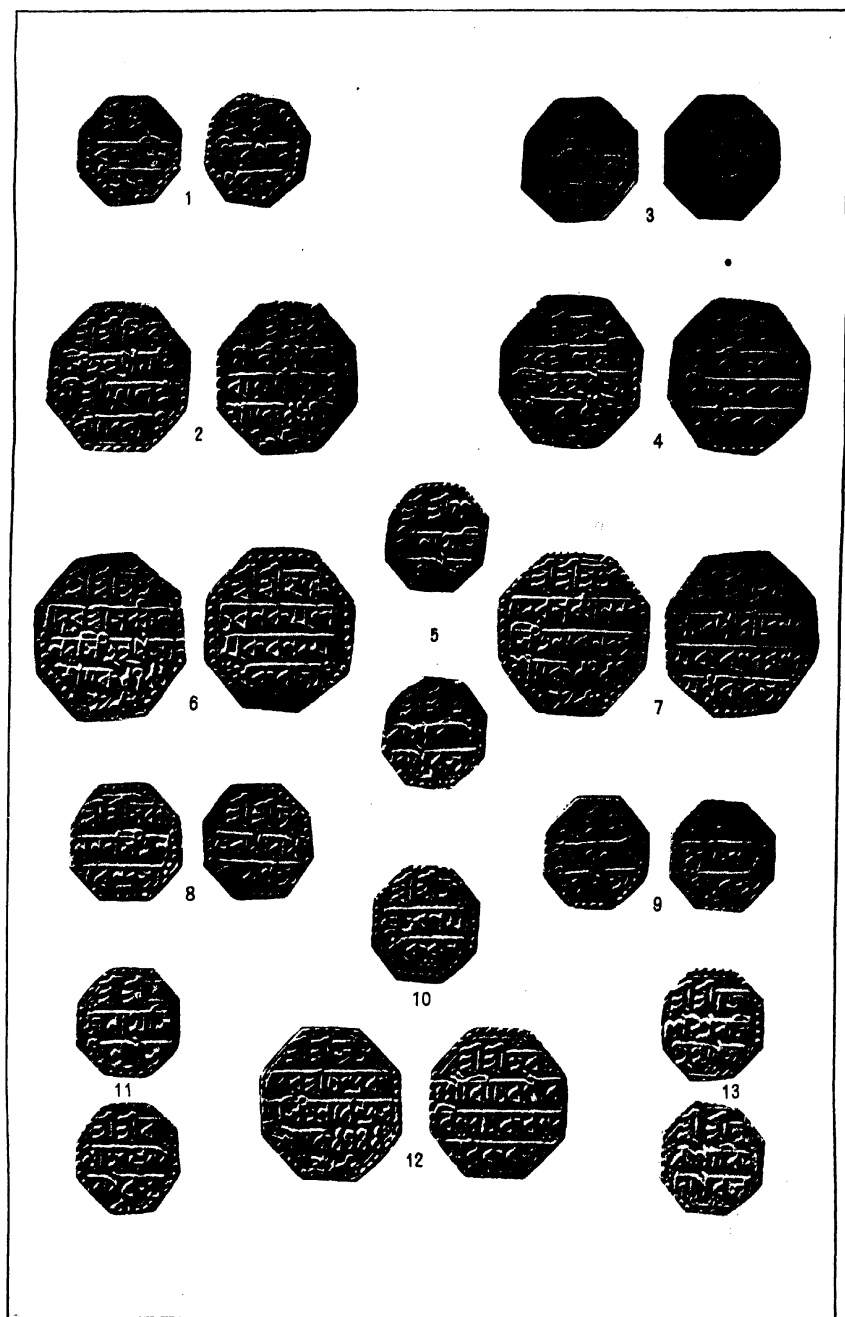
"The God, Süremphā (the tiger from the border of heaven), became King in the year Raisinā" (43rd of the 20th *taosinā*, or cycle of 60 years counting from 568 A.D. = 1751 A.D.).



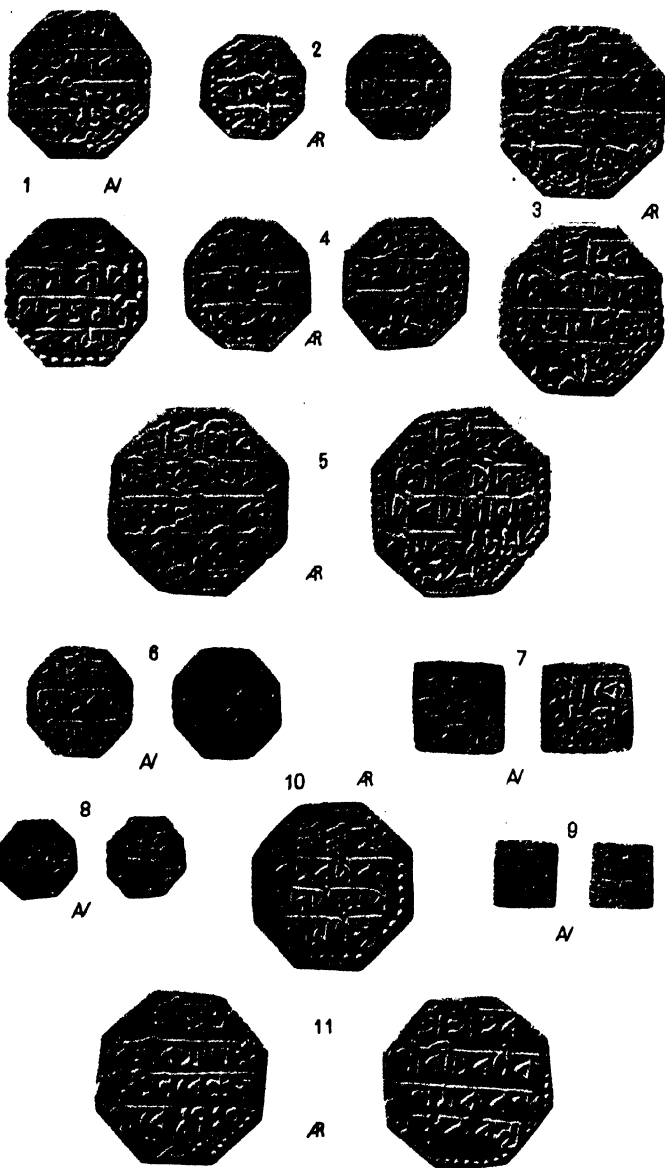
REVERSE.

- (1) *Kao*, I, *boi*, prayer.
 (2) *phā*, heaven, *Lēmbi*
 (3) *n*, *hā*, offer, *chā*, name.

"I offer prayer in the name of the heavenly Lēmbā" (i.e., Indra).



Assamese Coins from the Duflating Find.



*From the Journal and Proceedings, Asiatic Society of Bengal
(New Series), Vol. VI, No. 8, 1910,*

The Kotwalipara Spurious Grant of Samacara Deva.

By RAKHAL DAS BANERJI, *with a Prefatory Note by* MR. H. E.
STAPLETON, B.A., *Inspector of Schools, Dacca.*

35. The Koṭwalipārā Spurious Grant of Samācāra Deva.

By RAKHAL DAS BANERJI, *with a Prefatory Note by MR. H. E. STAPLETON, B.A., Inspector of Schools, Dacca.*

NOTE.

The principal feature of the *bil'* country lying in the S. W. of Faridpur district is the finely preserved fortification of Koṭwalipārā, the mud walls of which are each about 2 miles long and 20 to 30 feet high. Early in 1908, in the course of a tour of inspection in Bakarganj and Southern Faridpur, I had the opportunity of visiting the locality in company with an Assistant Settlement Officer, Babu Kālipada Maitra, and as the result of my request that he should look out for coins, and copper plates similar to the one described in the Journ. Asiatic Soc. Bengal for 1896, pp. 6—15, by Babu Nagendranath Basu, that is alleged to have come from the village of Piñjuri close to and outside the south-west corner of the fortification, Kalipada Babu forwarded to me later, in 1908, the rubbings of two Gupta coins, and the copper-plate that forms the subject of Babu Rakhaldas Banerji's note. A cast of one Gupta coin now in my possession, belonging to Skanda Gupta, was exhibited with the copper-plate at the Society's Conversazione last January, and the other coin is dealt with in a recent paper on Eastern Bengal and Assam history (Journ. Asiatic Soc. Bengal, 1909, Contributions 1, p. 142). The copper-plate was at first entrusted to Mahāmahopādhyaya Haraprasad Sastri who, with the help of Pandit Nilmani Chakravarti, roughly deciphered it and read the date as being 44 of the Sri Harsha era (= 651 A.D.). He added, however, that, in the opinion of the late Dr. Bloch, the plate was a *kuta śāṣana*, or forgery. Babu Rakhaldas Banerji subsequently undertook to make a more thorough study of the plate, with the result that Dr. Bloch's opinion seems to be confirmed.

The plate is said to have been recently discovered about 9 inches under the surface of the ground by a cultivator while digging his holding at Ghāgrāhāti, a mauzā close to Piñjuri on the Ghāgar River which runs from north to south along the western *pār* of the fortification. The names of the mauzās in the immediate vicinity bear no relation to the names given at the end of the fortification, but 2½ miles north, near the north-west corner of the fort, occur four mauzās, *Ferdhara* (to the south of the village and thana Ghāgarhāt), *Koakha* (to the north-east of the same village), *Parkunāhā!* (within the fort at the

N.-W. angle), and *Kujbon* (a large mauzā, of which the southern boundary is the northern *pār*). The first two appear to be the modern representatives of *Vidyādhara Jogikā* and *Chandra Varma Kogaka* respectively, and indicate that the original deposit-spot of the copper-plate under consideration was, near the place where the old road from Ghāgrāhāt to Gaurnadi (in N.-E. Bakarganj) still passes through the western *pār*.

The plate is interesting as dating from before the time of the Sena Kings, though it is disappointing that no light is thrown on the question as to who was the builder of the *pārs*. The discovery of the Gupta coins in villages lying close to the western *pār* may be taken, however, as proof that the fortification dates back to at least Gupta times, as, apart from the *pārs*, there is nothing in the surrounding *bil* country to induce invaders from the N.-E. to visit the place. The history of the locality will form the subject of a later paper.

H. E. S.

The plate was sent to me at Mussoorie by Mr. H. E. Stapleton in September, 1908. It was sent back in November from Lucknow for the Society's *Conversazione*. The plate was finally handed over to me for publication in July 1909. Mr. Stapleton has recorded the *provenance* in the prefatory note. The discovery of the copper-plate and the gold coin in the mounds of the outskirts of Kotwalipārā is of great interest, as it proves beyond doubt that there was an ancient settlement at this place centuries prior to the Mussalman conquest. Kotwalipārā or Kotālīpādā is at present known as one of the oldest Brahmana colonies in Bengal. Prof. Nilmani Chakravarti wrote to me while I was at Lucknow that the late Dr. Bloch had pronounced the grant to be a forgery. Dr. Bloch himself told me a short time before his death, that he considered the grant to be a forgery. Nothing seems irregular in the script or the date at first. The script belongs to the period when acute-angled characters were beginning to be used in North-Eastern India, and the ancient Gupta alphabet of the Eastern variety was gradually becoming out of date. The date also is not irregular, the year 34 of the Harsa era = 640-41 A.D. also suiting the palæography. After prolonged examination I found some of the minor irregularities in the script:—

(1) In all cases, the letter *ha*, when it occurs singly, is of the form generally to be found in early Gupta inscriptions of the Western variety and shows *no* acute angle at the bottom. But when it is used in a compound letter it has the form to be found in early Gupta characters of the Eastern variety, which is to be found in the Allahabad Asoka-pillar inscription of Samudra Gupta ¹ and the Dhanāidaha grant of Kumāragupta I. ² In

¹ Fleet's *Gupta Inscriptions*, p. 1.

² See *ante*, vol. v, p. 459.

[N.S.]

a previous number of the Journal I have tried to establish that the Eastern variety of the early Gupta alphabet was dying out in the early decades of the fifth century. The Patiākellā grant of Śivarāja¹ and the Bodh-Gayā inscription of Mahānāman² prove that the elimination of the Eastern variety of the fourth century alphabet was complete by the end of the sixth century A.D. This conclusion is further borne out by the Mūṇdeśvarī Inscription of Udayasena³ and the Ganjām plate of the time of Śaśāṅkarāja.⁴ Moreover the *ha* of the Western variety occurring singly and that of the Eastern variety occurring in compounds (*hma* in *brāhmaṇa* in line 11 and line 14), are hardly in keeping with the general tone of the characters of the inscriptions. But I shall have to dilate on this point later on.

(2) In all cases, the long *ī* has the form generally to be found in the Eastern variety of the early Gupta alphabet. The most conspicuous case is the *ī* in *Jivadatta* in line 4 and to some extent *ī* in *Kesav-ādīn* in line 15. But in a genuine inscription of the Harṣa year 34 one expects long *ī* of the looped form to be found in the Mūṇdeśvarī Inscription or the Ganjām grant.

(3) There are two cases of the occurrence of the short *i* in its single form, and in each case it has a different form. The *i* in *icchāmy-aham* in line 9 consists of two dots, one above the other, and vertical straight line to the proper left. The *i* in *icchato* in line 14 consists of two dots, placed side by side with a horizontal straight line below them. The usual form of *i* in inscriptions of the first half of the seventh century is to be found in the two copper-plate grants of Harṣavarddhana and the Ganjām plate of the time of Śaśāṅkarāja. This consists of two dots or circles placed side by side and a curved line below them.

(4) Many of the characters of this inscription exhibit fourth century or early Gupta forms. In the majority of cases the letter *ma* has the hooked form to be found in the *Bhāradi Dih* Linga inscription. The *bipartite ya* looks ill side by side with *sa*, *ja* and *ha* (when it occurs alone), in which no acute angle can be traced.

(5) *La* as a subscript letter occurs only once and resembles the hooked *la* of the Eastern variety. In this inscription *la* in all other cases resembles the *la* of the Western variety of the Gupta alphabet.

(6) *Da* has two forms when occurring in the same compound *nda*:—c.f. *Suvarnda* in line 3 and *maṇḍale* in line 4 with *Vatsakuṇḍa* in line 7 and *Janarddaka-kuṇḍa* in line 8. In

¹ Ep. Ind., vol. ix, p. 285.² Fleet's Gupta Inscriptions, p. 274, pl. xlia.³ Ep. Ind., vol. ix, p. 289.⁴ *Ibid.*, vol. vi, p. 143.

the last two cases the compound has the form to be found in all Northern Indian inscriptions from the second to seventh century A.D.

(7) The scribe has made a serious mistake in using some eighth century characters of the Northern variety in the word *Parkkaṭi* in line 19. The letter *pa* in the word does not resemble the remaining ones, which are usually rectangular in form, seldom showing an acute angle. In this letter, the right-hand vertical and the horizontal straight lines of the letter have merged into a single curve. The earliest occurrence of this form of *pa* is to be found in inscriptions of the seventh and eighth centuries A.D. But the more important piece of evidence is to be found in the second syllable *rkka*. This consists of two looped *kas* and a superscript *ra*. But even in the Bānskhera and Madhuban plates of Harṣavarddhana, which are inscribed with characters so cursive and at the same time the execution is so very beautiful that they may be taken to represent the current script of the period, the looped form of *ka* in the sixth century A.D. are to be found in the Bodhi-Gayā Inscription of Mahānāman and the Ganjām plates of the time of Śaśāṅka.¹

This form of *ka* becomes fairly common from the last quarter of the seventh century A.D. and afterwards.

Thus, we find that the characters used in this copper-plate inscription were collected from alphabets in use in three different centuries:—

(1) The alphabet of the third and the first half of the fourth century A.D., c.f. *ha* in *hma* and *la* in *śloka*. The form of *ma* shows that it was copied from the early Gupta alphabet of the Eastern variety.

(2) The alphabet of the last half of the fifth century and the first half of the sixth century A.D. of North-Eastern India. The absence of acute angles in *ja*, *pa*, *ha* and *la* shows that the alphabet of the period of the Mūṇḍeśvarī inscription was also included.

(3) The regular alphabet of the sixth century with its profusion of acute angles is also very conspicuous. This alphabet came into general use in North-Eastern India in the earlier part of the seventh century A.D.

Apart from the palaeographical evidence, the wording of the inscription itself is sufficient to prove that it is a forgery.

The formula of a regular grant of land as is to be found in majority of copper-plate inscriptions may be divided into three separate parts:—

(1) The first portion may be either in prose or verse and generally gives the genealogy of the king or eulogium on him.

¹ Fleet's Gupta Inscriptions, p. 274, pl. xlii : Epi. Ind., vol. vi, 143.

[N.S.]

In shorter grants this portion is written in prose and gives the titles of the king.

(2) The second portion is invariably written in prose and contains the announcement of the grant to the various officers concerned. This portion also contains the details about the grant, e.g., the particular division, district or sub-division in which the land or village granted was situated.

(3) Some imprecatory verses generally taken from some of the Dharma Sāstras are added at the end. In some cases the date is given after these imprecatory verses.

This grant differs from the majority of copper-plate grants discovered up to date in the following particulars:—

(1) The king does not seem to be the donor, or to have consented, or to have sanctioned the grant.

(2) The name of the donor cannot be made out from the wording of this grant.

(3) The officers concerned in a particular grant are never mentioned by name: at least no such instance has been discovered up to date.

(4) Supratikasvāmī seems to be the agent by whom the various officers mentioned in lines 4 to 8 are informed about the grant. But the very same man is again mentioned in line 17. The construction of this line is ambiguous, but it seems that he is the man to whom the grant was made. For example, compare the statement in lines 9 to 12, where he says, “By your grace I intend to settle for ever in order to spread the sacrificial rites in this world.” The wording of this line too is also very ambiguous, and I am not quite sure as to the exactness of the above translation. Such a statement, viz., the expression of the grantee’s intention, is very odd in the wording of a copper-plate grant and, so far as I know, has not been met with before. The employment of the recipient of a grant as a *Dūtaka* is again extremely unusual, and I believe no such case has been met with up to date.

The wording of the copper-plate, as I have already stated, is very ambiguous, and it cannot be made out who is the real donor. It is quite certain that the king mentioned in line 2 is not the donor. The grant may have been made by the officers mentioned on the obverse, but this is not certain. In any case, when a subordinate officer, or a number of officers, or a private personage makes a grant, it is absolutely necessary to obtain the royal sanction to it. Similar cases have already been met with: compare the Kamauli grant of the Singāra Chief Vatsarāja of the Vikrama year 1191 = 1134 A.D.¹

The contents of lines 12 and 13 are quite unintelligible. Here and there words of Sanskrit origin are to be found

¹ Epi. Ind., vol. iv, p. 131.

mixed up with what seems to be unintelligible gibberish. The scribe's object most probably was to create an impression by using high-sounding words. Dr. Bloch seems to have deciphered these two lines in a different manner, but I do not think • he succeeded in interpreting them. We have a mention of a forged grant in the Madhuban grant of Harsavarddhana, in which we find that the king, finding that a Brāhmaṇa named Vāmarathya was enjoying a village named Somakunḍaka in the Śrāvasti bhūkti by holding a forged grant, confiscated the village and granted it to another man in the 25th year of his reign, *i.e.*, 631-32 A.D. The wording of the 10th line of the plate is quite clear.

“Somakunḍakagramo Brāhmaṇa Vāmarathyaena kūṭaśa-sanena bhuktaka iti vicārya yatas-tac-chāsanam bhañktvā tasmādaksīpya ca.”¹

The inscription is incised on a thin plate of copper measuring $8\frac{1}{2}'' \times 4\frac{3}{4}''$. There is a projection to the proper right of the inscription to which the seal was attached. The seal itself has now disappeared revealing a triangular slit, the object of which is inexplicable to me. Round holes are to be found in grants which are incised on two or more plates, and the ring holding together these plates passes through these holes, but these holes are always round, and I do not remember having ever seen or heard of an angular hole in a copper-plate. The average height of the letters are $\frac{3}{8}''$. The record is incised on both sides of the plate, the obverse bearing 12 lines and the reverse 11. The orthography scarcely needs any comment, but the following forms should be noted:—

(1) The *Suvarṇa* in line 3 was most probably meant to be *Suvarṇa*.

(2) *Vyavahānaśca* is most probably equivalent to *Vyavahāriṇaś-ca*.

(3) The word *Patucca* in line 16 seems to be the *Prakrit* form of *Pratīcyā*. The use of this word is another argument against the genuineness of the grant. The language of the grant is incorrect Sanskrit. Another strong argument against the genuineness of the grant is that the scribe wanted to put extra stress on the word *Tāmrapaṭṭa*. It has been used at least thrice, and it seems that the owner of the plate was over-anxious to get the plate established as a regular grant; compare line 11 तावपट्टीकृत्य, lines 15—16 प्राज्ञावपट्टीकृत्य and line 17 सुप्रतीकस्त्रामिनः तावपट्टीकृत्य प्रतिपादितः।

Nothing is known at present about Samācāradeva, the king in whose reign the grant purports to have been issued. The date at the end of the grant is 34, and this should be re-

ferred to the Harṣa era and not to the Gupta era. It must be admitted that a large number of letters of the Eastern variety of the early Gupta alphabets has been used in this grant, but the general tendency of the characters show that the scribe intended to use the acute-angled alphabets of the sixth and sixth century A.D. If this supposition is correct then the date of the grant is the 1st of Kārtika of the Harṣa year 34, i.e., 640 A.D. I may note in this connection that the date has been differently read by two different scholars.

Prof. Nilmani Chakravarti of the Presidency College read this date as 44, but this can hardly be the case, as the letter *la* has always been used to denote the numeral 30. In another grant I have noticed that any other compound formed with the letter *la* also denotes the same numeral.¹

The late Dr. Bloch read the date to be 14, but I believe I have already adduced sufficient proof to establish my reading. In the year 640 Emperor Harṣavarddhana of Thaneśvara was alive and was in undisputed possession of Northern India from the Panjab to Assam. At this time the existence of an independent monarch, as is indicated by the title Mahārājādhirāja, in Eastern Bengal can hardly be credited unless substantiated by epigraphs. I edit the inscription from the original plate.

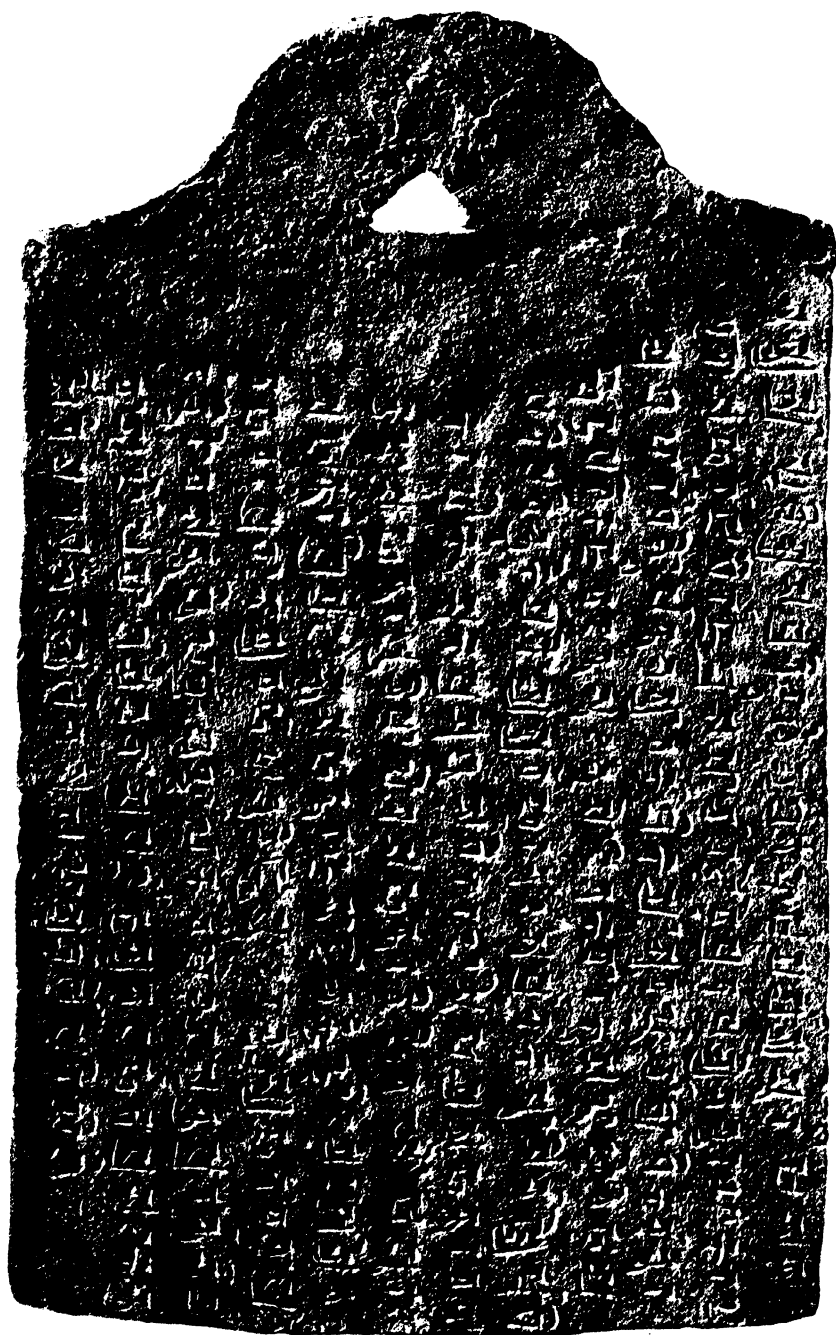
TEXT.

Obverse.

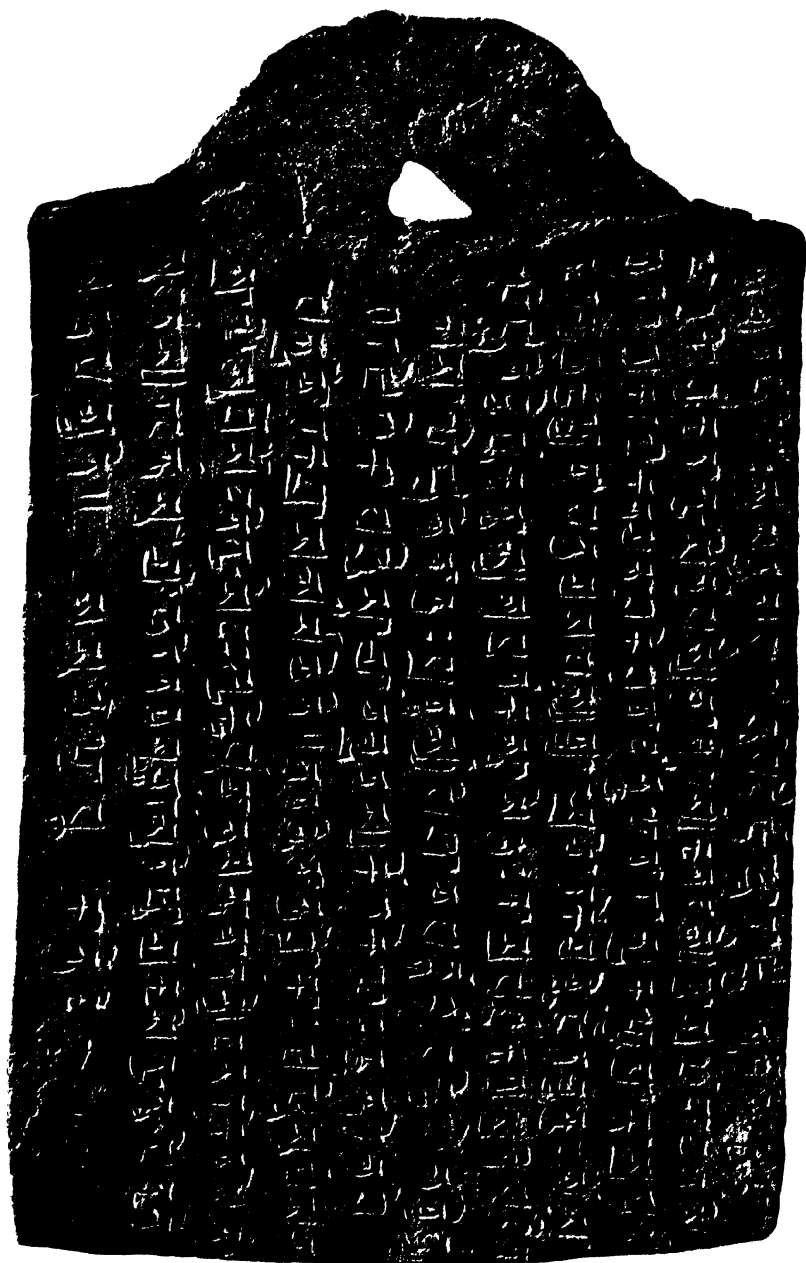
- १ । स्वस्त्यस्याम्भुयिव्याम्भतिरथे नृग-नङ्ग-ययात्यम्बरीष सम-
- २ । धृतां महाराजाधिराज श्रीसमाचारदेवे प्रतपत्येत्तरण करण
- ३ । युगलाराधनोपात्त नव्यावकाशिकायां सुवर्ण वाण्याधिकृतान्त-
- ४ । ऋ उपरिक्त जीवदत्तस्तदनुमोदित कवारकमगडले विषय-
- ५ । पति पवित्रको यतोस्य व्यवहारतः सुप्रतीकस्वामिना जेष्ठ्याधि-
- ६ । करणिक दामुक प्रमुखमधिकरणम्बिषयमहत्तर वत्स-
- ७ । कुण्ड महत्तर शुचिपालित महत्तर विहितघोष श्रूरद
- ८ । महत्तर प्रियदत्त महत्तर जनार्दनकुण्डादय अन्ये च
- ९ । बहवः प्रधाना व्यवहारिणश्च विज्ञाप्ता इच्छाम्यहं भवता['] प्रसा
- १० । दाक्षिणे वसन्नखिल भूखण्डलक बलि चरु सच प्रयत्नगीय
- ११ । ब्राह्मणोपया गायत्र ताम्रपट्टीकृत्य तदहं [य]था प्रसाद कच
- १२ । मिति यत धनदम्यर्थनमुपलभ्य सं यो परिलिखिता

Reverse.

- १३ । न्य व्यवहारिभिः समन्य (?) सापटौ (?) श्वापदौ (?) जे (?) छा
राज्ञौ धर्मार्थं निर्मल
- १४ । इच्छतो व्या(?)कृता भूमिं नृपस्यैवार्थधर्मं कृतदस्मै ब्राह्मणादायतामि
- १५ । त्ववष्टय करणिक नयनागकेशवादीन्कुलचारान् प्रकस्य प्राप्ताम्नपट्टौ
- १६ । कृत्य क्षिप्रं कुल्य (?) वामत्रयं मयास्य व्याघ्रघोर कोयच्छि पतन्व
मुःसौमा
- १७ । लिङ्गा निर्दिष्टं कृत्वास्य सुप्रतीकास्वमिनः ताम्रपट्टौकृत्य प्रतिपादित
- १८ । सौमालिङ्गानि चात्रः पूर्वस्यां पिशाचपर्काद्वौ दक्षिणेन विद्या-
- १९ । धरजोगिका पश्चिमायां चन्द्रवर्त्मकोगकेनः उत्तरेण गो
- २० । पेन्द्रघोरक ग्रामसौमाचेति ॥ भवन्ति चान्द्र श्लोकाः षष्ठिम्बर्ध सह
- २१ । स्त्राणि स्वर्गं मोदति भूमिदः आक्षेप्ता चानुमन्ता वा तान्येव नरके
वसेत [॥]
- २२ । खदत्ताम्परदत्ताम्बा यो हरेत वसुन्धरां स्वविद्याया(१) कृमिभूत्वा
पिष्टभि ।
- २३ । सह पच्यति ॥ सम्बत् ३०, ४, कार्ति दि १ ॥



The Kotwalipara grant.—Obverse.



The Kotwalipura grant.—Reverse.

*From the Journal and Proceedings, Asiatic Society of Bengal
(New Series), Vol. XVIII, 1922, No. 1.*

Issued 20th July, 1922.

**Contributions to the History and Ethnology of
North-Eastern India—III.**

By H. E. STAPLETON, I.E.S.

5. Contributions to the History and Ethnology of
North-Eastern India—III¹

By H. E. STAPLETON, I.F.S., *Special Officer, Dacca University.*

THE ORIGIN OF THE CATHOLIC CHRISTIANS OF
EASTERN BENGAL

(Together with an Appendix on the *History of the Portuguese
in Eastern Bengal*, by the late DR. JAMES WISE,
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(Plates I and 2).

Little hitherto appears to have been published regarding the origin of the Catholic Christians in Eastern Bengal who bear Portuguese names, and Dr. Wise's researches on the subject have, up to now, only been available in the extremely rare volume entitled "Notes on the Races, Castes, and Trades of Eastern Bengal," of which twelve copies were privately printed in London in 1883. Owing to the fact that these Firingis (as they are called by their Hindu and Muhammadan neighbours) bear Portuguese names it is generally supposed that they are descended from the Portuguese pirates who infested the Delta of the Ganges in the 16th and 17th centuries. The Portuguese annals constantly refer, however, to the baptism of Indians under Portuguese names, and it is noteworthy, as I pointed out in 1907 in a Monograph published in the Quinquennial Report on Education for Eastern Bengal and Assam, that their own priests do not regard these Christians as anything else but Indians. They speak usually nothing but Bengali; they are indistinguishable from Bengalis in dress and means of livelihood; and until quite recently they made no claim to be of Portuguese descent. The following notes on the names in common use amongst them attempt to deal with the subject from a point of view which, I believe, has not hitherto been discussed.

During a visit in 1913 to a school for these Christian children that is attached to the Portuguese church at Husain-ābād (locally pronounced Hashnābād) in the Nawābganj Thana of Dacca District, I was struck, firstly, by the absence

¹ The second paper in this series is to be found in *J.A.S.B.*, Vol. VI (1910), pp. 619-648. As internal evidence will suggest to the reader the materials of the present paper were chiefly collected before the war, but the enforced delay in its publication has enabled much further information to be incorporated, especially in the historical portions of the writer's own paper and in the notes to Dr. Wise's account of the Portuguese.

of Portuguese names from the register, and, secondly, by the apparent occurrence of strictly Bengālī names among the Christian boys. The Pandit, who was himself called Gabriel Gomez, explained that in addition to the Christian surnames, most of the boys have *Dāk-nāms* or customary names of address which are often recorded in the register; and even surnames are generally replaced—Welsh-fashion—by the name of their father's *bāri* (homestead). Father Menezes, the local Goanese Vicar, who was present during my inspection, further explained that as nearly all the Christians possess one or other of the four surnames—Gomez, Rozario, (Da) Costa and Rodriguez, some other nomenclature has to be adopted to prevent confusion between boys of the same name. Another reason for the use of *dāk-nāms* is that, following Muhammadan custom, boys are often called after their grandfather, and as any direct mention of the father-in-law's name by a daughter-in-law would imply lack of respect on her part, mothers are in the habit of giving their sons nick-names to avoid mention of the boy's grandfather's name. It is also significant that the Muhammadan custom of calling fathers and mothers after their first child is prevalent at Hashnābād, e.g. I noticed in the records of the adjoining church that one woman was called *Moti ma* (Moti's mother).¹ Seeing that I was interested in these people, Father Menezes was good enough to call two or three intelligent men and the results of my enquiry into the names given in the school register are noted below. Except in the case of boys of the same homestead or *dāk-nām*, the order is that found in the register, and the only omissions are where names that have already been explained happen to recur. The explanations of the local Firingis have been considerably supplemented from information obtained at my request by the late Father Altenhofen, C.S.C., who, until some time after the outbreak of the European war, was stationed at the Bishop of Dacca's Mission at Bandura, a village close to Hashnābād. I have also availed myself freely of criticisms by educated Hindus and Muhammadans who have seen this paper in proof.

1. ALBIN NIDHAN.—The latter is evidently the Bengali *নিদান*, poor.

2. DOMINGO LALMON.—*Lalmohan* is a favourite Bengal sweetmeat: but is also a common name amongst the lower classes in Eastern Bengal.

¹ In Hindu families, besides the *dāk-nām*, each person possesses a *rās-nām* or astrological name. This is kept concealed from every one from the superstitious fear that if it becomes known to an enemy, mischief will follow owing to it being possible to tell the approximate time of the owner's birth from the first letter of the name. M.M. Haraprasad Shastri has recently suggested to me that one possible reason for the suppression of the Christian surnames among the Dacca Christians may be that they regard them in somewhat the same way as a Hindu does his *rās-nām*.

3. DOMINGO MUKTA.—The latter is the Bengali মুক্তা 'free'; or it may be the corruption of another word meaning pearl, মুক্তা.

4. (a) ALBERT } AUDARBARI.—Several explanations were
(b) ALOIS } given for the name of the boy's house, none of which can be regarded as altogether satisfactory. The first was that, the name of his great-grandfather was Adu, which was said to be a corruption of Antony. The possessive form of Adu has been corrupted in Audar. Father Altenhofen later informed me that this explanation was not, in his opinion, correct, and that Adu was a corruption of Adari, 'a common Mussalman name.' Educated Hindus on the other hand prefer to look upon Adu as a corruption of Adarini—a female name meaning 'beloved,' which is sometimes given to children whose predecessors have died in infancy, and who, to avert the evil eye, are deposited for a short time after birth, near a latrine, or *chilāl* (rubbish pit).

An entirely different explanation is that given by Father Menezes, viz. that Audar is short for *Harildar* after one of the boy's ancestors who served the mission as tax-collector. A more possible alternative to this latter explanation would seem to be that the name is a corruption of *Howladar*, the common term for a petty Talukdar in Eastern Bengal.

ALOIS, the name of the second boy, is another form of the Christian name 'Aloysius'.

5. ANTONY POCHA.—This latter word is a well-known nickname in Eastern Bengal both amongst Muhammadans and Hindus. It is simply the Bengali পোকা ('sick' or 'rotten') and is given to a boy whose elder brothers have died in infancy, to avoid the further influence of evil spirits. The Hashnābād Christians who were present all admitted that the boy's parents had previously had children who had died in infancy, but denied that they believed in evil spirits. That they do, however, is beyond question, and those who know them best agree that they often show themselves to be still as superstitious as the most ignorant among their Hindu or Muhammadan neighbours.

6. (a) ESCOLASTAS } PESHKĀRBARI.—Father Menezes in-
(b) TRINATUS } formed me that the first Christian name is a corruption of Callistus, while Trinatus is the Latinised form of *Trindade*—the Portuguese for Trinity. As for the house name, the priests in the Christian settlement at Nāgori (near Kaliganj on the Iakhya River) still employ a servant called a Peshkār, or Dewān, in Zamindāri matters. This man acts as a sort of confidential clerk or secretary.¹ The name of the boy's house seems therefore, to show that a similar officer was once used in the Hashnābād Zemindāri. Or,

¹ "Peshkār is one who puts up papers before a king or Court. *Pewshā* has the same meaning" (M.M. H. P. Shastri).

alternately, he may be descended from some immigrant from Nágori.

7. PAUL GOPAL.—The latter is a common Hindu name.

8. MARTIN GOMEZ.—This is one of the few instances found in the register, of the use of a Portuguese surname. It was found on enquiry that the boy came from Dhana Khalifār-bāri, “the house of the cook¹ (called) Dhana.” This latter is a favourite name amongst Hindu mothers, being the Bengali ধান (rich).

9. JOSEPH NAIJBARI.—An interesting story was told me in connection with this name. The house is called after the boy’s great-grandfather who was the Manager of the Hashnābād Estate in the middle of the last century. It was decided by the Mission authorities that two priests who had just been appointed to Hashnābād should manage the Mission Estate themselves. The Naib resisted, and a “Battle” took place in 1274 B.S. (1867 A.D.). Both the Naib and the priests were imprisoned in consequence of a man being killed in the fight. The priests were released after six months by the direct intervention of the Viceroy. When the Naib was subsequently let out of prison, he asked pardon from the priests and became their Dewān. He was a very strongly built man, and, as a proof of his power of leaping, the marks of his two hands in black *gāb* juice are still to be seen on the roof of the anteroom of the priest’s house, 11 ft. from the ground. A story is also told of how he won a piece of contested land for the Mission by taking some earth from Hashnābād by night, and placing it in the field under dispute. The next morning, standing on this earth, he swore in the presence of the rival Zemindars that to his knowledge the land on which he stood belonged to the Mission, in consequence of which it was handed over to the resident priest.

10. (a) MONTE } HAUS-MUSTIBARI.—Father Menezes said
(b) DHANA } the first name was a common Portuguese one. The second, Dhana, has already been referred to under No. 8.

‘Haus’ is the local name for a place where fresh water can be constantly obtained, like a pucca well, or reservoir (কোঠা) for ablution before *namāz*. As for ‘Musti,’ I was informed that it was probably a corruption of *Muchi*, one of the lowest of the Hindu castes, as the family in question occupies a very low social rank among their fellow Christians (*c.f.* also No. 44 *infra*); but other explanations were that it is a corruption either

¹ The honorific title of *Khalīfa*, which really means “Successor” is also applied to tailors. It was used in the first instance to indicate the successors of Muhammad, and is still found among the Faraizis of Eastern Bengal (a Puritanical sect of Muhammadans) as the title of their *panchāyat*. M.M. H. P. Shastri points out that by similar misuse of honorific titles cooks are called *Maharājās* in the United Provinces, and sweepers, *Mehtars* or *Jamadārs*, in Bengal.

of *Musjid* (the entire house-name in this case suggesting that the *bārī* was originally built on the disused site of a mosque); or, less probably, of *Mulasaddi*, the title of a Treasurer or Cashier in Muslim times.

11. AUGUSTIN MOTI.—The latter is a common Hindu and Muhammadan nick-name, meaning 'Pearl.' It is used by Hindu boys and Musalman girls. It may however also be a corruption of Matthew.¹

12. FRANCIS SHODAN.—The latter is either from the Bengali (শোদন) pure, or a corruption of the common name "Madhu Sudhan."

13. JOSEPH MISTRIBARI.—The latter name does not mean, as might be thought, that one of the boy's ancestors was a carpenter, but that he is descended from a *Mestre*—the Portuguese for a catechist or sacristan.

14. (a) BALAI } MATBAR-BARI.—The name Balai may be

(b) MOHAN } a contraction of the Hindu name Balaram, while Mohan is a common Hindu name. The name of the homestead shows that the family descended from a former Headman (সহকারী) of their village Nayansri—a mile away to the west of Hashnābād.

15. MANUEL RAZA.—The latter was said to be either a corruption of the Hindu name Rajendra, or more probably a mispronunciation of Rāja (King), a name often given to an only son.

16. NIMIS SIMARBARI.—The former is either a corruption of a Latin name Nimesius or, more probably, of Nehemias. *Simār*, the local Christians considered to be a corruption of Simon. The *Simārs* belong mostly to the Jolā caste (*vide* No. 24 *infra*).

17. AUGUSTINE GASPAL.—The second name is said to be a corruption of the name Gaspar.

18. JOSEPH BOITA SHONARBARI.—This boy is said to be descended from a dwarf (সোনা, *baitta*) whose *dāk-nām* was *shonā* (সোনা golden).

19. (a) ASSIS

(b) JANU

(c) LAURENCE

IMAMNAGAR.—Assis may either refer to St. Francis d' Assisi or is a corruption of the Muhammadan name

Aziz.² Janu is said to be a Muhammadan name and not, as might be supposed, a corruption of John. The village name *Imāmnagar*

¹ Other corruptions of European names found among these Christians are: Giri—Gregory; Tufani—Stephen; Bintu—Benedictus; Anis—Ernest; and Ambo—Ambrose. Tufani is, however, a name constantly found amongst Namasudras, and may only refer to the fact that the person who bears it was born during a storm.

² Father Hosten prefers the first explanation of Assis. He writes: "Assis should be considered as a Portuguese form of 'de Assisi.' There was a Father d' Assis at the Boytakhana Church, Calcutta, for many years."

also seems to point to a Muhammadan origin for this family. It is situated on the opposite side of the small river Ichhamati to Hashnābād.

20 (a) SHUKU } SHIKDARBARI.—Shuku is from the Bengali শুক, happiness; Nagar is said to be a corruption of Nagen, or it may simply mean 'town' as in *Nagarbashi*—a fairly common name amongst low caste Hindus;¹ and Nalmon is a corruption of Lalmohan (*vide* No. 2). I was told that the homestead name indicates that the boys are descended from the petty village pleader who used to appear in disputes before the priests, and that the family came from Malikanda, near Narishā, before it was cut away by the river. The ancestors of the family held good positions when indigo was still largely grown in Eastern Bengal. It may, however, be noted here that in Bikrampur, *Shikdār* is the usual name of the *nafrs* (or former slaves), who now hold land from Zemindārs on condition that they perform certain menial duties when required, e.g. they clean the cooking utensils of the household, and at weddings they have to carry the bridegroom and bride in procession.²

21. SENNY BILU-SADU-BARI.—This extraordinary name appears to mean that the boy, to avoid ill-luck, was called by his parents after the Hindu planet Sani (शनि Saturn), and that he is a son of Bilu who was either descended from a Hindu Sanyāsi (সন্ন্যাসী)—this word in turn is derived from *Sādhan* (intensive meditation)—or whose father was called Sadu—a corruption of the Muhammadan name Saadat Ali. It was suggested that Bilu is the equivalent of William, but Bilu is a common Hindu and Muhammadan name. It is a corruption of *Bilva*, the *Bel* tree, which is regarded as sacred by Hindus, as it is supposed to be the favourite tree of Mahadeva (Siva): no Hindu *pūjā* can be performed without its leaves.

In this and other similar cases, the Christians present freely admitted that they were descended from Bengalis, and in illustration of how Portuguese names do not imply descent, I was told the following story:—

In 1912, some objection was made by the Educational authorities to admitting the claims of certain boys from Golla, near Hashnābād (who had obtained admission on the strength of their surnames to a European School) to be of Portuguese descent. The rumour at once spread in the Christian villages that all but those whose surname was 'Gomez' had been ac-

¹ If pronounced Nāgar, it means 'Lover', as in Sri Krishna's name 'Nāgar Syām Rai.'

² This is another instance of the sarcastic use of high titles that has been previously referred to in the note on No. 8 *supra*. In the time of Muslim rule in Bengal, the officers in charge of Revenue divisions termed *Mahalls* were given the title of *Shiqdār*, cf. Blockmann, *Geography and History of Bengal*, J.A.S.B., 1873, pp. 214 & 273.

cepted, the reason being that this name is regarded by the Firingis as the usual synonym for 'native Christian.'¹

22. GOLAP SHARDARBARI.—Golap is a Hindu name meaning 'Rose.' I was told at the time that Shardārbārī meant that the family is descended from a leader of the village Paiks, the militia of the middle ages in Bengal; but I have subsequently learnt that the title of Shardār was formerly given to the Headman or President of the guild of 'Pobres' (undertakers) or Church servants in Calcutta. This title of honour is still used by descendants of these men in their native villages.

I may add that the Church at Bandura is sometimes referred to in the *Catholic Herald* about the middle of the 19th century as the 'Pobries' Church, presumably because it was from this neighbourhood that Calcutta then drew "its inexhaustible stock of cooks and 'pobrys'" (*idem*, Dec. 15, 1865).

23. MUKTA KALU SHIKARIBARI.—The first name has already been mentioned under No. 3. I was told that the boy's grandfather, who was called Kālū ("Blackamoor") was a hunter of pigs on the Faridpur *chars* (sand dunes). Another homestead in the vicinity is also known as Bāgh Shikaribārī, "The house of the Tiger hunter." Kalu is a name used both by Hindus and Muhammadans, and in the case of Hindus is an abbreviated form of Kālī Mohan ("the charmer of Kālī," i.e. Siva). It was suggested, however, by one of my informants that among the Christians it might also be a corruption of Carolus.

24. ADU DAURIJOLA-BARI.—For *Adu* cf. No. 4 above. *Dauri* at first was said to be a Muhammadan name connected, possibly, with "Dārī," beard. It is, however, a common name among the lower Hindu castes, and as the word is used as an adjective in the sense of 'wet and rainy' it may refer to the boy being born on a stormy day. Another explanation is that it is derived from the Bengali দাঁড়া a man who does not stick to his word, 'an untrustworthy person.' Jolā means that this family is descended from Musalman weavers (জোতা).

25. (a) MANGAL) PARAMANIKBARI.—Mangal is a Bengali

(b) JANI { name used both by Hindus and Muhammadans, and means 'fortunate.' Jani is a Muhammadan name meaning 'beloved.' Paramanik probably shows that the family is descended from a Hindu barber, but like Shiqdār (*vide* No. 20 *supra*), it is an honorific title now adopted as a family name in several castes, e.g. the Suvarnabaniks.

¹ I add here a note by Father Altenhofen on the precise local meaning of the word 'Firingi': "Mussalmans call any Christian 'Firingi'; but as the native Christians are black compared with Europeans, they are called sometimes 'Kālā Firingis.' In the Muffusil they are simply called Firingis, because there are no white Christians there. That Firingi is more the name for 'Christian' than 'European' is shown by the expression still in use *Firingi Kara* = 'to baptise'."

26. JOSEPH ATAI KANTUBARI.—Kantu is said to be a Musalman name (! Kāndu). Atāi signifies that the boy is descended from a man who was an eight months' child.

27. POCHA KHAITABARI.—For Pocha *vide* No. 5. Khaita is the Bengali (খাইতা), a dwarf. Locally it seems to be used, like Pocha, as a charm against the evil eye.

28. FELU KOILABARI.—Felu is a Musalman name. Koila is a nickname meaning 'charcoal' or 'a coal-black person' (*cf.* No. 23).

29. MARTIN SHUMASTIBARI.—The boy's homestead is said to be a large one and the name may therefore mean simply 'big house,' (Bengali বড় বাড়ি).

30. JOHN TURKULI.—Turkuli was alternately said either to be a Musalman name; or 'a big worm that lives in mud.' My Musalman servants did not however recognise either, nor had the local Sub-Inspector of Schools ever heard before of such a word as Turkuli. Father Altenhofen subsequently wrote: "The question of Turkuli I solved simply by telling the school children to bring me that 'worm.' I got a number of a very common insect, which always flies round the lamp in the evening, especially in January and February."

31. MOTI TALGASIYABARI.—For Moti *vide* No. 11. The homestead name signifies that formerly a big palm tree (তাল গাছ Tāl gāch) stood near it. A similar name is seen in the next boy in the register Laurence Tetulgasiya-bari, whose home is near a big tamarind tree (তেঁতুল গাছ).

32. KANAI BHOGAIRBARI.—Kanai is a typical Hindu name, being one of the names of Krishna. Bhogai was said to be a corruption of Bhagirath, the name of a Hindu ancestor.

33. FELU KHALPARIABARI.—Felu is a Musalman name *vide* No. 28. Khālpāria bārī is so called because the homestead is situated on the bank (*pār*) of a *Khāl* (water channel).

34. JUMA DUNDARBARI.—The first name is probably a Musalman name, though if it represents a Christian name it stands for James. The Christians suggested at the time of my inspection of the register that *Dunda* was from the word meaning the scoop (made from a hollowed-out palm tree) that is employed to lift water from one field to another (দুন্দা *donda*). I afterwards learnt that *dunda* is the local name for a quarrelsome woman. As the joint family system is still observed by these Christians, there are often many women in one *bārī*, and if they habitually quarrel, neighbours soon get to call the house *Dundā-bārī*, the *bārī* of the quarrelling women.

35. SHUKU NAIRABARI.—For Shuku *vide* No. 20(a). Nairabari is said to be derived from Nūr, a Musalman name.

36. FRANCIS DAYAL DUKHAIBARI.—The boy's grandfather who was called Dukhai (from দুখ sorrow) is said to have become a disciple of a Fakir and when he returned to the Christian fold, the priest is said to have suffixed to his name

Dayal (দয়াল) meaning "the too-broad-minded one" by way of punishment.

37. NIDAN BAKTABARI.—For Nidan *vide* No. 1. Bakta is the Bengali ভক্ট, "Religious." Father Menezes was inclined to agree with Dr. Wise's remark that it was a name originally "given to the Secretaries who also acted as catechists in the absence of the Pastor." For further information on *Bhaktas* *vide* p. 41 of the reprint of Dr. Wise's paper, and note (2) on the same page.

38. SHUKAI DACAITBARI.—The first is a Hindu pet name from the same root as *Shuku*, *vide* No. 20(a). As regards the homestead name, the Christians declared that the boy's ancestor was not a dacoit, but that his ancestor was given the name because he killed several buffaloes who strayed on to his land. In Bikrampur generally, *Dacait* is colloquially used for a rash or headstrong man.

39. JOSEPH KANSHABARI.—Kansha was said to be the Bengali "কংশা" "*Khanchā*," a large wooden plate; but it seemed to me at the time more likely to mean that the ancestors of this family were braziers (কংশ, brass). Subsequently I learnt that the true derivation was quite different. An ancestress of the family had given birth prematurely to a child on the edge of the slope (*Kānshā*, কান্শা) of the earthen mound on which the house was erected. The child was given the name *Kānshā* with reference to this incident, and it has been kept by his descendants.

40. GULU DALIBARI.—Gulu is a Musalman name but the Christians said that it is a corruption of *Golāp*, *vide* No. 22. The name of the homestead would appear to imply that the boy's ancestor was a shield-bearer, (গলি, *Dhāli*); especially as a leather shield and some old *Rāmdaos* (swords) still hang in the anteroom of the Priest's house and are taken out on Good Friday for use in the procession on that day. The Christians, however, asserted that the name showed that the boy was descended from a *Dāli* (ডালি), the local name for a superior kind of sweeper who supplies plantain leaves for a feast, and clears away the refuse afterwards. In Bikrampur, *Dāli* is identified with *Beldār* (বেলদার), or Muhammadan sweeper.

41. ANTONY AUNJU.—Father Menezes informed me that the latter was a corruption of the Portuguese name *Dos Anjos*.

42. FELU KARIKARBARI.—For Felu, *vide* No. 28. The homestead name shows that the boy is descended from a *Jolā* or Musalman weaver. *Kārikar* is a title used by men of this caste.

43. MUKTA DARI SHANERBARI.—For Mukta, see No. 3. Dari Shaner was explained by the Christians as being derived from *Darikandi* (a village name); but it appears more likely to be a compound from the word *Dauri* that occurs in No. 24; and *Shonā*, *vide* No. 18.

44. **PAUL MUSI MATBARBARI.**—Although the Christians denied the derivation, the name Musimatbar appears to show that the boy is descended from a Headman of the *Muchi* or cobbler caste. The appellation Musi (Muchi) may, however, be derived from the low-caste nickname given to a child by parents, whose previous children have died, to ward off the effect of the evil eye. The procedure is to sell the child to a very low caste man for an insignificant sum—even a broken cowrie will do—and then to redeem it for a much larger amount, say Rs. 2. Once this is done, and the child given the name of the low caste purchaser, the superstitious parents believe that the child will survive, the evil spirits not caring to waste their time in harming any one of apparently such a low caste. In this case, therefore, a Muchi may have been the purchaser of the child, while the child's descendants probably retained the name from similar motives.

Usually, however, in Hindu circles, the parents do not go so far as to change the family name, but only prefix a name indicating the price for which the child was sold, e.g. "Tinkari" Banerji.

Whatever be the true story, the family to which this boy belongs ranks among the lowest grades recognised by Firingis and finds it difficult to obtain bridegrooms for its girls.

45. **MANIK FAKIRBARI.**—This is an altogether Hindu name. *Mānik* means a Jewel (ruby), and the original ancestor of the family appears to have been a converted Fakir.

46. **MOTI KALA-BOLA.**—This would also appear to be an entirely Hindu name. *Kālā-bolā* is said to be a corruption of *Kālu Bholānāth*; but may also come from *Kālā Balarām*, the former a name of Krishna, and the latter that of his elder brother.

47. **NAGAR GAYANBARI.**—This again is altogether a Muhammadan name. The homestead name shows that the family is descended from Musalman singers (গায়ক).

48. (a) **SHONA } BOBARBARI.**—For the two *dāk-nāms* see
(b) **JANI } NOS. 18 and 25 (b) respectively.** One of their ancestors was either dumb (Bengali বোকা) or received the nickname Boba.

49. **SHODAN OIBARBARI.**—For Shodan *vide* No. 12. Oiba is said to be a corruption of *Habibulla* and indicates descent from a Muhammadan of that name.

50. **SIMON DOMINGO.**—This shows that the boy Simon is the grandson of a Christian called Domingo.

51. **FRANCIS DAGARBARI.**—His grandfather was called by the Musalman name *Dāgu* which may be derived from the Bengali দাগ, to scratch.

This concludes the list of names found in the school register; but the following additional names that are in use in the locality may also be briefly referred to. They are chiefly

selected from the Parish Registers which are very excellently kept and deserve more careful study than I was able to give to them during my short stay at Hashnābād.

52. AMRABAZIYIA BARI.—This is said to be derived from Āmirābād, a Bikrampur village near Narisha, which has now been cut away by the Padma. When this happened the people migrated to Hashnābād. The name of the village first appears in the Hashnābād Registers in 1780, and in 1844 there were still 25 Christian families there. It is evidently a different place from the 'Amidabad' mentioned by Rennell in his *Journal* as the northernmost of the islands in the Megna, east of Rajabari (*Memoirs A.S.B.*, Vol. III, No. 3, 1910, p. 38). In proof of the dialectic change of a terminal 'd' to 'z' (or 'j') in Dacca District, I may mention that when subsequently visiting a girls' school under P.O. Āmirābād, Thana Raipura, I noticed that the girls wrote the name of the post office as অমিরাবাজ.

53. SITABARI.—This is a nickname given to a man who was so lazy that he would not plant onions properly, one by one, but scattered them over the field and then went home, expecting that they would grow. It is from the Bengali চিঁটা *Chhita* (pronounced *sita*), a careless sower.

54. MULKHAR BARI.—This is named after Muluk Chand, an ancestor of a family called Rozario. The homestead is otherwise known as *Jaishāriyār bārī* as Muluk Chand's father came from Jessore. These names at first suggested to me the possibility that this family might be connected with the son of the Zemindār of Busnā, one of the Twelve Bhuiyas of Bengal, who was the chief agent in the success of the Augustinian Mission in the 17th century. Under the name of Don Antonio del Rosario he had joint charge in 1679 of the Parish of Noricol. This place was a little to the east of the present Janjira on the southern bank of the Padma. Don Antonio is not, however, recorded as having had any children (though he had a wife) and he probably ended his life as a monk at Nāgori (*vide* note 1, p. 4, *infra*). Some Christians seem to have remained behind at Noricol after the exodus to Nāgori in 1695, and it is said that it was their migration to Hashnābād that led to the erection of the church at Hashnābād.¹

Another homestead is called Bhuyārbārī which also sug-

¹ Rennell notes in his *Journal* on the 14th February, 1765: "The 14th in ye afternoon passed Luricule which is situated on the south side of the [Mulfatganj] creek. Luricule, once a remarkable village, lies almost half way betwixt ye Ganges and Megna, is about 28 miles S. & W. from Dacca and 3 ESE from Rajanagore. Here are ye ruins of a Portuguese Church and of many Brick Houses." (*Memoirs A.S.B.*, III, p. 39.) It would be interesting to discover what led the Christians to desert their settlement. The ruined buildings remained visible till 1880 when the spot was swept away by the river (*idem*, p. 135).

gested, at first sight, some connection with the former Twelve Lords of Bengal. On the other hand a simpler explanation might very well be that the original owner was a taluqdār, as, in Bikrampur, cultivators still address their immediate landlord as *Bhuiya*. Further enquiries showed as a matter of fact that the original ancestor of the family was a Muhammadan landowner called Muhammad Ali who lived at Dapari (near Nawabganj) and Masurikhola (near the western mouth of the Buriganga) about seven generations ago, i.e. c. 1700 A.D. The first Christian of the family settled in Bandura.

55. **PALTAN SHIKDARBARI.**—No. 20 may be seen in connection with the homestead name. The first name indicates that some member of the family was a soldier, employed in guarding the old military road from Calcutta to Dacca. After crossing the Padma near Moinat steamer station, this road reaches the Ichhamati River at Nawabganj. There are still numerous “Paltans” in the villages of the Nawabganj Thana.

56. **FOITABAZIYA SHONARBARI.**—This is called after a man Shona (*vide* No. 18) who came from Fathābād, the old name for the present districts of Barisal and Faridpur. The Bengali poet Vijay Gupta mentions “Muluk Fateābād” in 1494 A.D. (*cf.* Dinesh Chandra Sen—“History of Bengali Language and Literature,” page 279; also *Dacca Review*, Notes and Queries No. III, March, 1913, p. 457).

57. **TATKA BASI BARI.**—The first *dāk-nām* of the man was *Bāsī* (বাসী), which means “stale.” As however he was in the habit of talking too much at meetings, he was given an additional nickname *Tātkā* (টটকা) which means “fresh.”¹ The name is in phonetic accordance with certain Hindu names, e.g. Nadiyārbāsī (নদীয়ারবাসী) inhabitant of Nadia; and Mohan-bāsī (মোহনবাসী, melodious flute).

58. (a) **ALI** } **COSTA.**—These two names supply an ex-

(b) **MINGA** } ample of a Muhammadan name being used in the same family as a Portuguese name, Minga being said to be a corruption of Domingo. Ali may however be short for Ali Chand, the usual Firingi corruption of Alexander.

59. **CHANDI AKALIABARI.**—A former owner of the homestead was originally called Akalia because he was born in famine time. When, afterwards, he went to Calcutta, as many of the Christians do, to serve as a cook, he worked with Maghs, amongst whom he was known as Chandi. The name stuck to him on his return.

60. (a) **RANI BADARBARI** } The first two supply instances
(b) **JAMAILARBARI** } of Muhammadan names;
(c) **HIRARBARI** } while Hira is the Hindu name

Hiralal. Rānī Badar refers to a man called Badar (after Pir

¹ This explanation seems rather far-fetched.

Badar, one of the Patron saints of boatmen, whose shrine is at Chittagong). The man's mother was so fair that she was admiringly called Rānī. Jamail is a corruption of the Musalman name Jamāl.

These sixty items appear to show fairly conclusively that in the great majority of instances the Christians of Hashnābād are not descended from Portuguese at all but are merely converts from Hinduism and Islām. Additional proof of this is afforded by the fact that all the Christians near Hashnābād belong to one or other of four sub-castes between which little intermarriage has hitherto taken place. These, in approximate order of social standing, are :—

- (1) CHĀSHA (cultivators) ;
- (2) JOLĀ or JOLAHĀ (weavers) ;
- (3) NIKĀ (descendants of a remarried widow) ;
- (4) CHĀRĀL (Chandāls, who now call themselves Namasudras).

The first two chiefly claim to be of Mussalman descent though some of the Jola class are known to have been Hindu in origin. Father Altenhofen informed me in 1913 that the proportion of Musalman to Hindu Feringis at Hashnābād and the neighbouring Dacca Mission station of Gollā is roughly 3 to 1. Though in no way superior in character to the Christians of Hindu descent, the Musalman Chasha Christians consider themselves much superior in social status and only for a third or fourth marriage, if no other woman can be obtained, will one of them condescend to marry a Hindu Chasha Christian. Jolās marry much more frequently with Chārāl Feringis ; but absolutely no marriage is said to occur between the Nikās and other Christian castes. The name Chāsha suggests that even this class may have been originally Chasi Kaibartta (the Hindu caste which now prefers to call itself Mahishya) and that before Hashnābād Kaibarttas became Christian there was an intermediate stage of Muhammadanism. The inclusion of persons of both Musalman and Hindu descent among the Christian Jolās also points to the accuracy of Dr. Wise's remark that even the Muhammadan Jolahās were probably once low caste Hindus, though the classification adopted by the Hashnābād Christians seem to indicate that their original caste must have been of somewhat higher status than Namasudras.

All this tends to support the evidences of history in affirming that the Portuguese missionaries of the 16th and 17th centuries did not chiefly deal, as Dr. Wise seems to have concluded, with the descendants of Portuguese, but that their main work was to minister to converts from both the Muhammadan and Hindu fold. Prior to the advent of the British, Musalman converts were compelled to remain 'Hidden Christians,' as open conversion involved the capital penalty both for convert

and missionary¹ and it is therefore probable that these early missionaries obtained their chief successes amongst the lowest Hindu castes, just as at the present day, Christianity in Bengal is only making headway among the Namasudras, and such semi-Hinduised castes of as the Koch-Mandai of Bhowal. With extremely few exceptions, none of the existing Catholics, who reside in Mofussil villages of Eastern Bengal, make any claim to be of European descent: they all freely admit that they are descended from either Muhammadans or Hindus. The priests unanimously agree that their flocks still follow the same customs as their Hindu and Muhammadan neighbours, and are only slowly dropping those observances that are not in accordance with Christian teaching; while the emphasis that is still laid upon caste bears a strong resemblance to the practices that the missionaries of the latter half of the 17th century so bitterly complained of in the case of the wholly Indian converts of Antonio del Rozario. We thus arrive at the conclusion that the Catholics of Dacca District who have formed the subject of this paper are Indians pure and simple; and, but for their Portuguese names and the occasional use of articles of European dress—both of which are sufficiently accounted for

¹ Cf. Jossion, *Historie de la Mission du Bengale de la Compagnie de Jésus Missions Belges* 1914, pp. 6 and 7 (referring to Dacca and Bhowal about 1750). For proof of the firmness with which caste and other Hindu practices were retained by Don Antonio's converts from Hinduism at an earlier date, cf. Father M. A. Santucci's letter to the Rt. Rev. Father F. Queyroz, Patriarch of Ethiopia, dated January 1683—the portions reprinted by Father Hosten in the *Catholic Herald of India* for Nov. 21st, 1917, p. 792; Nov. 28th, p. 813, and Dec. 12th, pp. 848-9. From these it is clear that the Hindu converts still considered themselves to be Hindus.

A story told me recently by M.M. Haraprasad Shastri, after reading this paper, illustrates very clearly from his own experience the power still exercised by caste in the case of other races in North-Eastern India. During the great Orissa famine of 1866, missionaries assisted in the work of relief and incidentally made many converts. They followed up the work of conversion by making provision for the English education of the converts' children: and ultimately a Brahmin's son passed the B.A. To celebrate his success he gave his friends a feast at which chicken curry was served. Hearing this his father became very angry. He said: "There was famine and food was not available; the Padri Saheb gave us food and made us Christians. What if we *were* made Christians! Did we give up our caste? Are we like Bengali Christians, eating chicken and beef and giving up our caste?"

I quote the story below in all the vividness of the original Bengali:—

১৮৬৬ সালে উড়িষ্যাৰ আকাল হয়। লোকে খাইতে পায় না—অনেকে মারা যায়। মিশনারিরা অনেককে খাইতে দেয় ও তাহাদের খ্রীষ্টধৰ্মে দীক্ষিত করে। তাহারা ছেলেদেরও ইংরাজী শিক্ষার উপায় করিয়া দেন। একটা ব্রাহ্মণের ছেলে বি, এ, পাস করে। সে তাহার বন্ধু বান্ধবকে কীট দেয়। সে কীটে মুরগীর মাংস ব্যবহার হয়।

এই কথা শুনি তাহার পিতা বড়ই চট্টয়া যান। তিনি বলেন, “আকাল হইল, খাতি না পাইল, পাদরী সাহেব খাতি দিন। কিরন্তান করিল—কিরন্তান হইল ত কি হইল। মু কি জাতি দিন। মু কি বান্দালী কিরন্তান যে মুরগী খাইব, গরু খাইব, জাতি দিব।”

by the prolonged influence of Portuguese Catholicism on Eastern Bengal—they would probably never dream of alleging that they have any admixture of European blood.

I add as an Appendix (I) the introductory note that is found in a register belonging to the Hashnābād Mission, in which some account is given of the origin of the Mission. As it was only written in 1880, it merely embodies current tradition, but the opening sentence is of some importance in confirming the argument of this paper that the Portuguese Missions in the interior of Bengal were to converts, and not to descendants of Portuguese. No earlier documentary evidence regarding the history of the Mission appears to be available at Hashuābād.

I also reprint as a second Appendix (II) Dr. Wise's historical essay on the Portuguese of Eastern Bengal that was mentioned at the beginning of this paper and to which reference has been made more than once in subsequent pages. This I do, not only to rescue it from the ill-deserved obscurity in which it has hitherto remained, but also because, in addition to supplying an excellent summary of the early history of the Portuguese in Bengal, the author is inclined to adopt a somewhat different view of the origin of the Catholic Christians from the one I have been led to by the facts stated in this paper. It is reprinted from a copy of Dr. Wise's volume on the Tribes and Castes of Eastern Bengal that was presented to me by the late Mr. Harinath De, I.E.S., when I first came to Dacca in 1905, and which has since been my constant guide in all matters of caste. Full notes have been added to bring the paper up to date, and to correct any inaccuracies that crept into Dr. Wise's account, and for these I have to express my special indebtedness to the Rev. Father H. Hosten, S.J.

A third Appendix has been added which summarises the work of the Propaganda Mission in Eastern Bengal. The figures, by comparison with those quoted by Dr. Wise, will furnish some indication of the progress of the Mission during the last forty-five years.

I cannot bring this paper to a close without a few words of further acknowledgment of the help that was so freely given me in 1913-15 by the late Father Altenhofen, C.S.C., when the materials on which the paper is based were being gathered and sifted. Just as the present edition of Dr. Wise's remarkable essay owes any merit it may possess to the generous assistance I have received from Father Hosten, similarly I would have hesitated to publish my notes on the origin of the Catholic Christians of Hashnābād, if Father Altenhofen had not been available to supply the many additional details of custom that only one living in the vicinity of Hashnābād could ascertain. Born an Alsatian, with his home close to "the starting point of the German army marching upon Longwy" (letter of Aug. 10th, 1914) he came out to India in October, 1907, and from

1911 to February 1915, he worked at Bandura and the neighbouring mission at Golla. Had he lived, there is no doubt that Father Altenhofen would ultimately have published much useful work on the origin and customs of the villagers amongst whom he laboured; but this was not to be. For some time after the outbreak of the war, he was preserved from internment by the intervention of friends who stood surety for him. When at last this was no longer permitted, and he was about to be sent to Ahmednagar, he fell seriously ill and after an operation in the Mitford Hospital, Dacca, he died on November 23rd, 1915. He is buried in the Catholic church at Tezgaon. Requiescat in pace!

APPENDIX I.

"ABOUT THE CATHOLIC MISSION AT HASHNABAD."

(A prefatory note in one of the Mission Registers:
written about 1880.)

It is more than 300 years ago that some natives of different parts of Bengal were converted to the Roman Catholic Religion through the efforts of the Portuguese missionaries.

Rev. Fr. Raphael¹ was the first priest who came to Hashnabad, and establishing himself in various places, converted a good number of people to his religion at Noricul now attached to Furredpore, and thence he passed to Hashnabad, Gollah, Malikanda, Solepore, Ikrashi and Bandurah of the District of Dacca. Dos Mahomed Osman of Hashnabad, being enraged

¹ As Father Hosten has pointed out to me, the Rev. Father Raphael who is here mentioned, is probably the Fray Raphael das Anjos who was priest at Padri Sibpur in and before the year 1764 (*cf.* Beveridge, *Backarganj*, pp. 106-109). This is also confirmed by the writer's statement—which he did not notice contradicted the date of 300 years ago for the foundation of the Mission at Hashnabad—that the Muhammadan Zemindar, Dost Muhammad Usman, sold his property to Friar Raphael 'when the English dominion was established in India.' According to the *Annuario da Archid de Goa*, 1897, pp. 193 and 194 (quoted by Father Hosten in his notes to Archdeacon W. K. Firminger's translation of Père Barbier's letter of 1723—*Bengal: Past and Present*, Oct.-Nov., 1910), the Hashnabad Mission dates from 1777 so that Fray Raphael would appear to have conducted his missionary labours in the Dacca District subsequent to founding the Christian settlement at Padri Sibpur. Further confirmation to the date of 1777 is furnished by the Church registers at Hashnabad, the first entries having been made in 1780. In view of Rennell's statement in 1765 that the church at Noricul was already in ruins (*vide supra*, p. 14, Note), I am inclined to doubt this local tradition of the original Christian colonists of Hashnabad having come from Noricul or of Father Raphael's alleged connection with that place.

The *touzi* number in the Dacca collectorate office of the estate held by the Portuguese Mission of Hashnabad is No. 1288 Taluk Padrean: but no reference to Dost Muhammad can be found in the collectorate papers regarding this estate.

at the conversions of his tenants to Christianity, ordered that Fr. Raphael should be arrested and his hands and feet being tied up should be thrown into a ditch or well. He defied the new converts saying: "If your priest is a true minister of Almighty God let us see whether he dies or not." And after a long time hoping Fr. Raphael was already dead, he ordered the Christians to take out and bury him, but to the great glory of God, to the extreme joy of the Christians, to the immense confusion of [the] heathens, Fr. Raphael was taken out alive and found unhurt. Then Dos Mahamed Osman asked pardon of Fr. Raphael and offered some landed properties for [the] establishing of his mission and his disciples.

Hence Fr. Raphael built his church about 300 years ago, converted many more people, and brought for missionary work another priest named Fr. John. When the English dominion was established in India, Dos Mahomed sold his Zemindary to Fr. Raphael and went away. The official documents of the Zemindary exist in the name of Dos Mahomed Osman. There is no difference between the Christians with regard to their social intercourse and they constitute and consider themselves as one family and they make a weak distinction in respect to marriages only; those who descend from Mohamedans, weavers, farmers, etc., want to have marriage with those of the respective origin; but at present this distinction is getting vanished owing to many mixed marriages. All documents of the former times are destroyed by white ants.

APPENDIX II.

PORTUGUESE IN EASTERN BENGAL.

By the late Dr. James Wise, M.D., of Dacca.

[p. 409] "The first Portugal," as far as Antonio Galvam knew,¹ "which drunke of the River Ganges was a knight, called J. Coello." In 1516, Fernando Perez de Andrada was sent with a letter to him, but the credit of having discovered and observed the country is due to Don John de Silveira, who was commissioned in 1518 to negotiate with the King of Bengal. The embassy was hospitably received by the governor of "Cnatigan," but a quarrel arose, and though speedily quelled, broke out again, and with great difficulty a treaty was concluded.

¹ "The Discoveries of the World." Reprinted by the Hakluyt Society, p. 131.

[According to Père H. Jossion *op. cit.* August 1913, p. 285) Coello was sent by d'Andrade to the Court of Bengal—then under Sultan Husain Shah. The Portuguese Viceroy of India at the time was the famous Alphonso Albuquerque (1509-1515); and he was succeeded by Lopez Suarez. H.E.S.]

ed. The governor, however, was only dissembling. The Portuguese vessels were attacked by a swarm of war boats, which they repulsed, but were obliged to retire to Ceylon in a very crippled state.¹

Another account is, that Silveira, being sent to establish a factory in Bengal, met with a most unfriendly reception owing to a rumour that his fleet was a piratical one. The expedition passed the winter amid great hardships, especially from famine, and the crews would have perished miserably but for the opportune arrival of another flotilla under Juan Coello.²

It is in connection with this expedition that Dacca is first mentioned in history. Fonseca refers to a governor of the city of "Daracca," and Castanheda styles him "do Señor da Cidade Darraçao."³

In 1527 a Portuguese vessel was wrecked on the coast of Chakaria, south of Chatigan. The crew on reaching dry land were ill-treated by the inhabitants and one of them killed.⁴

As early as 1528 the Emperor Baber casually mentions that the Bengalis were famous for their knowledge of artillery, acquired, there is reason for believing, from the Portuguese. A few years later Mahmūd Shāh, king of Bengal, hard pressed by the Afghāns under Shīr Shāh, applied for aid to the Viceroy at Goa [Nunode Cuna]. In 1537 a small force was sent under Martin Alfonso de [p. 410] Melo, but before it could reach Gaur, that city had been taken by the Afghāns. The Portuguese soldiers were at first ill-used, but their bravery in holding the pass of Taliāgarh gained them better treatment, and permission was granted to build a fort at Chatigan.

The Portuguese had no established government, settlement, or fortress in Bengal at the end of the sixteenth century. As a writer remarks, having no laws, no police, and no religion they lived like the natives. A lucrative and thriving trade, however, was carried on at Hughli, or, as it was then called, Golin and Porto Pequeno, as well as at Chatigan, or Porto Grande. Furthermore, numerous Portuguese adventurers resided with their families in Bandels,⁵ trading in salt and cotton goods, which were shipped in "Foists," or Jaleas, to Dianga,⁶ and the

¹ "Osorio da Fonseca," p. 412; "Lopez de Castanheda," Lib. iv, cc. 38, 39.

² "Faria-y-Sousa," i, 220.

³ "Fonseca," Lib. xi, 413; "Castanheda," *op. cit.* [Father Hosten notes that Dr. Wise is at fault in saying that this is the first mention of Dacca. The reference is to Arakan—Racão in Portuguese.]

⁴ "Histoire Générale des Voyages," i, 141.

⁵ From Persian "Bandar," an emporium, mart.

⁶ The site of Dianga is still doubtful. Du Jarric (Liv. vi) says it is "une ville sise en ce port de Chatigam, ou les nefes qui viennent de l'Inde, mouillent l'ancre." Van der Heiden describes it as "eene Stadt in de haven van Chatigam."

[Dianga is near the mouth of the Karnafuli River, on the left bank.

Portuguese settlements on the Malabar Coast. Others took service with native princes and fought bravely against Mughal and Afghán. These mercenaries were regarded as rebels (*levantados del rey*), because they neither assisted their countrymen nor paid tribute to the Goa Government. Their character was infamous. The majority was composed of military deserters, ruined traders, renegade priests, and spendthrifts of all ranks and professions, who, resorting to Bengal, led scandalous lives, without any religion or law. The dishonour brought on the Christian name forced the Church to interfere and at the end of 1597 [May, 1598] a deputation, consisting of two Jesuit fathers from Goa and one from Dianga, was sent by the Archbishop of Goa to preach the gospel in Bengal and minister to the Portuguese settled there.¹

In 1598, the fathers arrived at Hughli, where many Portuguese and native Christians resided. The number of professing Christians far exceeded what was anticipated, and at "Ciandecan" or Jessore, the mission baptised two hundred free and bond men. The toleration of the native rulers and officials is most surprising. When the fathers left Hughli, after founding a school and an hospital, the first in Bengal, the Munçif did not exact the customary fees. At "Ciandecan" they were given a piece of land rent free on which to build a church, and got permission to preach and convert at pleasure. At Sripur the same liberality was shown. Six hundred pieces of gold were

Ruins of a church, etc., are said to be still visible there. Three miles to the north on the opposite bank, half way to the present town of Chittagong is Angaracole, which had also an Augustinian Church when Manrique visited Chittagong in 1630. In 1843, Father Barbe, the Vicar of Chittagong, wrote to the *Bengal Catholic Herald* (Vol. V, pp. 268-271) that 12 Christian families still lived at Deang; and that he had been told "by a Mosulman, who is about 10 years old, that he recollected the time when some of the villages close to that place were all inhabited by Christians. Since that epoch, some families are gone to Tipperah, some to Neacolly (Noakhali) and the remainder are in different places of the Chittagong District." (cf. Father Hosten's notes to Père Barbier's letter (*loc. cit.*, pp. 20 and 21) H.E.S.)

¹ [There were, however, priests in Bengal proper before 1597, to whose ministrations the occurrence of the Christians referred to in the next paragraph was presumably due. Jesuits from Goa (Antonio Vaz and Pedro Dias) are mentioned in 1576 as having visited Bengal. Another priest of Satgaon, called Julian Pereira, journeyed to the Court of Akbar in 1578; and the impression he made on the Mughal Emperor resulted in the invitation to Fatipur Sikri in 1580 of Aquaviva, Henriquez and Montserrate from Goa. (Josson, *op. cit.*, pp. 289, 290 and 322). The names of the two priests (not three, as Dr. Wise states), sent by Father Nicolas Pimenta, Visitor of the Society of Jesus, to Bengal from Goa in 1598 were Francis Fernandez and Dominic Sosa. They were joined in the following year by Andrew Bowes and Melchior de Fonseca; but Father Hosten doubts whether either of the latter came from Dianga. Fernandez died in prison at Chittagong in 1602 from ill treatment at the hands of the Arrakanese King. (Josson, *op. cit.*, pp. 290 and 291; Beveridge, *Bakarganj*, pp. 28-34.) H.E.S.]

assigned as an annual contribution; while at Baklá the salary of two priests was paid by the Rája.

[p. 411.] In 1601, the Jesuits had two missions in Eastern Bengal, one at Jessore, the other at Chatigan. Owing, however, to disturbances, the Jesuit fathers were withdrawn, and the Church of Eastern Bengal was transferred to the care of Augustinian monks from Goa. At the end of the sixteenth century there were churches at Jessore, Bákla, Dacca, Śrípúr, and Noricol,¹ supported by Portuguese settlers and native converts.²

Very little is said of the internal condition of the country. Dákáfts infested the tidal branches of the Ganges at that time, as they did two centuries later. The country generally was remarkably fertile, and the abundance of corn and fruit almost incredible. Wherever they went the Hindu and Muhammadan inhabitants treated them with marked respect and kindness. Father Pimenta has left us the following charming description of the scenery of the Delta.

"The route from Baklá to Jessore [Ciandeca] is so agreeable and picturesque that I have not seen its equal. Plains irrigated by numerous rivers whose banks are adorned with the most beautiful trees. On the one side you perceive large herds of deer, on the other flocks of cattle. I forbear mentioning the luxuriant fields of rice, the thickets of sugar-bearing reeds (*Arundineta calamis mellifluis redundantia*), the hives of bees, the monkeys bounding from tree to tree, and such like objects that afford pleasure to travellers. Tigers and crocodiles that feed through our neglect, or fault, on human beings, are common. In the woods rhinoceroses are seen, but this far I have met with none."³

In 1602, the Portuguese of Chittagong, being harassed by attacks of the Arakanese, made Sondip their chief stronghold. This island, situated in the estuary of the Ganges, is probably the oldest and most permanent of the group which the mighty river is for ever building up and destroying. It had belonged to the Rájah of Baklá, but the Muhammadans took possession, and when Le Blanc and Caesar Frederick landed, between 1565 and 1586, the Moorish inhabitants were most friendly and courteous. The fertility of the island was unparalleled, the population large and prosperous, and the cheapness of food extraordinary. The manufacture of salt and the trade of ship-building were carried on with great energy and success.

¹ In Rajnagar, on the right bank of the Padma.

² For further particulars regarding the Jesuit Mission, see R.P. Petri Jarrici, "Thesaurus," iii, 2, c. xxix; "De rebus Japonicis, Indicis, etc." A Johanne Hayo, Scoto S.J.P., 809; "Exemplum Epi tolae P. Nicolai Pimentae." Romae, 1602. [Also Jossou, *passim*.]

³ "Exemplum," p. 91. [Father Pimenta is quoting from a letter written in January, 1600, from Ciandeca by Father Melchior de Fonseca. The original Italian of this passage may be seen on pp. 31 and 32 of Beveridge's *Bakarganj*. H.E.S.]

The Portuguese, under command of Dominique Carvallho, a vassal of the Baklá Rájah, and Manuel de Mattos, from Cha-[p. 412] tigan, seized the island, but before they could secure their hold the King of Arakan¹ with a large fleet, and supported by a hundred "Kosahs"² from Śrípúr, sailed for Sondíp. The Portuguese joined battle and were victorious, capturing over a hundred war boats, but so many of their own vessels were disabled that they hastily evacuated the island and retreated to Baklá, Śrípúr, and "Ciandecan." The King of Arakan having recovered Sondíp, invaded Baklá, threatened Jessore, and boasted that he would conquer the whole of Bengal.

In May, 1603, Carvallho was at Śrípúr, a city belonging to the Bhúya Kedar Rái, superintending the equipment of thirty "Jaleas,"³ when a fleet sent by the viceroy, Rájah Man Singh, and consisting of one hundred "Kosahs" under "Mandarai,"⁴ hove in sight. Carvallho, hastily disposing his ships, engaged the enemy, and after a stubborn fight captured several vessels, and put the rest to flight. Mandarai was slain, and Carvallho severely wounded. The Muhammadan historian⁵ gives a very different account of the battle. Kaid Rái Zamíndár of Bikram-púr, he says, had been subdued by Rájah Man Singh, but in 1603, forming an alliance with the Mag Rájah, he rebelled and laid siege to a fort near Sunnárgáon. On hearing of this rebellion the viceroy sent a force under Ibráhim Atka, and others. The confederates were defeated and many boats taken. The narrative, however, ends with the suspicious statement that the Rájah was compelled to entrench himself in front of the imperial troops to provide safety against their attacks.

Carvallho proceeded to Hughli to have his wounds treated, and on his recovery, being invited by the Bhúya of Jessore to join in a war against the Mags, he proceeded, in spite of many warnings, to that court, where he was made prisoner and put to death.

Although the Portuguese were turbulent and lawless, pillaging Mags, Hindus, and Muhammadans without distinction, they were sometimes entrusted with high military commands in Bengal. For instance, Pyrard de Laval mentions⁶ one "Jean Garie," who had under him ten thousand of the Bengal troops.

¹ "Rex Tiparæ, Chaconæ et Bengalæ, Pegusii dominus." De Jarric, tom. iii, lib. 3, c. xxix.

² A "Kosah" was a war boat driven by oars, but having one mast.

³ A "Jalea," from Sanskrit "Jala," water, was a name applied to boats generally.

⁴ "Vir impiger et totâ Bengalâ notissimus." De Jarric. Mandarin was the title given by the Portuguese to any governor, or commander in the East. It is derived from "Mandâr," to command. The English title, Mandarin, for a Chinese official, is the same word.

⁵ Elliot's "History of India," vi, 109.

⁶ "Voyage de François Pyrard de Laval," p. 239. [Pyrard de Laval left India for Europe in 1610. He had been several years in the

In 1607 the Mag Rájah made war, captured Dianga, and [p. 413] drove the survivors to the islands of the Meghua. Sondip, which had fallen into the hands of the Mughals, was held by a force under Fath Khán, who had put to death all the Portuguese and the Christian slaves in the island. A few escaped with Sebastian Gonzales Tibao, and became pirates, plundering villages and conveying the booty to Baklá, where they sold it. Fath Khán having equipped a fleet, set sail to extirpate these pests, but Sebastian Pinto attacked his vessels off Dakhin Sháhbázpúr, destroyed a great number, and killed Fath Khán. In March 1609, the Portuguese, supported by troops from Baklá, laid siege to the fort of Sondip, held by the Mughals under a brother of Fath Khán, while the Hindu population looked on with characteristic indifference. The fort was stormed and taken after a gallant defence. The garrison and all the Muhammadans in the island, a thousand in number, were in retaliation massacred in cold blood. Gonzales perfidiously broke the agreement made with the Baklá Rájah, and instead of paying him half the revenue obtained from the island, refused to come to any understanding. The adjacent islands of Dakhin Sháhbázpúr and Patelá-bhanga were annexed and having in this lawless manner acquired possession of a small territory, Gonzales ruled both with wonderful tact and sagacity. Trade flourished, and the Portuguese became the envy and dread of the neighbouring princes. Good fortune also favoured them. A brother of the Mag Rájah, expelled from his country, sought shelter at Sondip. Gonzales married his sister, and after exacting a large sum of money, is suspected to have poisoned his brother-in-law.

The unsettled state of the eastern frontier, and the devastation of the Delta by the Portuguese, forced Jahángir to transfer the seat of Government from Ráj-Mahal to Dacca. In 1608, the Viceroy, Islám Khán Fathpúri, removed to the new capital and at once took measures to extirpate the Portuguese, and secure a durable peace. The district of Dacca was then a settled portion of the Empire, but farther south Mughals, Afgháns, and rebellious vassals¹ contended for power. In 1610, the Mag Rájah made a treaty with Gonzales, in which it was agreed that the latter should command the allied fleets and act in concert with the Arakan army as it marched along the coast, and that all territory conquered should be equally

Maldives where he was shipwrecked. An attack of the Mughls of Chittagong (?) on the Maldives gave him an occasion to escape in February or March 1607. He came for a month to Chittagong." H. H.)

¹ In a mosque at Farridpúr is an inscription of the date A.H. 1013 (1604), preserving the name of one 'Ajáb Bahádur Khán Sultáni, but omitting all mention of an Emperor, which could only have been erected by a rebel.

divided between the two contracting parties. The campaign began, Lakhípur and Bhaluah were overrun, but on meeting the Mughal army the Arakanese, owing to the shameful defection of the Portuguese, were totally defeated. Gonzales, a witness of the disastrous battle, [p. 414] fled to Sondíp, after putting to death all the captains of the Mag fleet. The Mughals re-occupied Bhaluah without opposition, but did not follow the fugitives to Chátgaón. To consummate his villainy Gonzales waged war against his late allies, plundered and burned their villages, and, sailing up the Arakan river, attempted, but unsuccessfully, to capture the vessels anchored there.¹

Up to this time Gonzales had refused to obey, or recognise, the viceroy at Goa, but in 1615, being hard pressed by the Mags, he submitted and urged an immediate invasion of Arakan. A fleet was accordingly sent under command of D. Francis de Menezes Roxo. It sailed up the Arakan river on the 3rd October, but the Mags, assisted by some Dutch vessels, offered a stubborn resistance, and obliged the Portuguese to retire. In November, Gonzales arrived with fifty sail, when a combined attack was made, but De Menezes being killed, the assailants fell into disorder and retreated.

Gonzales returned to Sondíp, but his power and popularity were gone, and his dispirited followers quarrelling among themselves, allowed the Mags to take the island. After ruling nine years, Gonzales was stripped of his possessions; "his sovereignty passed like a shadow, his pride was humbled, and his villainies punished."²

The Portuguese never recovered from this defeat, although their flag waved for many years unchallenged in the Delta, and

¹ [For the origin of this account *vide* Faria y Sousa, Tom III, Pt. II, Ch. IX, p. 179 of the Spanish edition. There is an English translation of his work in the Imperial Library, Calcutta. H.H.]

² "Faria y Sousa," iii, 268. [After being forced to leave Sondíp, Gonzales took refuge at Sripúr, and sent George de Sousa, accompanied by the Superior of the Sondíp Mission to obtain the permission of the Nawab of Dacca, to establish himself there. As the Nawab refused to allow the Superior to return to Sripúr, this Father may probably be regarded as the original Catholic missionary in Dacca. Katrabo, on the Lakhya River, is also mentioned about the same time (1616) as a Christian settlement.]

On the news of the capture of Hughli in 1632 reaching Dacca the local Maulvies beat Father Bernard of Jesus so severely that he died a few days later. Another Bengali Christian of Sripúr by name Garcia was taken prisoner to Agra where he died in 1634. (Josson, *op. cit.*, pp. 322, 323, 363 and 364).

I was also informed by the late Father Altenhofen that Zaleski in *Les Martyrs de l'Inde* (Lille 1900, p. 340) records yet another instance of the murder of a priest at Dacca. He was beaten by Maulvies so severely that after two days, he died of his wounds. "P. Manuel das Chagas, Augustinian parish priest at Dacca, dies a martyr in this town, when visiting some Christian prisoners of the infidels in order to hinder their apostacy on Dec. 5th 1650." H.E.S.]

the imperial Nawarah dared not meet their "Galliasse¹ in fair fight. Bernier,² however, makes mention of another Portuguese adventurer who acquired temporary power. "It was these same pirates," he says, "who at this time took Sondip, in which a certain notorious monk of S. Augustine, named Fra Joan, acted the petty sovereign for several years, having managed, God knows how, to get rid of (*se defaire*) the commandant of the place."

For the next fifty years the Portuguese lived by piracy, and by making raids upon the peaceful villages of Bengal. Some entered the military employ of the Arakan monarch, and commanded expeditions sent against Bengal, Pegu, and Siam;³ others joined the imperial artillery, and Jahángír was wont to say that one Portuguese soldier would beat three of his own people. [p. 415] Many assisted Shah Shuja in his ill-starred rebellion of 1660, and when his cause was lost became Dákáíts infesting the Sunderbuns, and lying in ambush in a creek near Sagar, still known as "Rogues' River," waylaid vessels beating up the Hughli.⁴

In 1662, the shipwrecked crew of the "Ter Schelling"⁵ arrived at Bhaluah, where they found Muhammadans speaking Portuguese, and the Moorish commander protected by a body-guard "consisting wholly of Christians negro-born, and subjects of the King of Portugal," who were treated with especial honour on account of their valour. Other writers, however, give a different estimate of these "negro-born" Portuguese, and in the seventeenth century their usual sobriquet was "Gallinhas del Mar" [Sea Hens] on account of their habitual cowardice. The history of two centuries confirms the latter judgment, and, except under very exceptional circumstances, the Portuguese Eurasian has never proved himself a valiant soldier.

¹ Tavernier describes the "Galeça" as a long swift boat, often with fifty oars a side, and two men to each oar. It was generally gaudily painted and ornamented with blue colours and gold foil.

² "Histoire de la dernière révolution des États du Grand Mogol." Paris, 1670. The incident is not mentioned by Faria y Sousa, whose history ends with 1640; and as Bernier left India in 1668, it must have occurred between these dates. [if it ever occurred at all. H.H.]

³ "Voyage de Wouter Schouten," ii, 168. [Josson records (*op. cit.*, pp. 364 and 365) that Father Manrique and other Augustine priests between 1622 and 1635 baptised at the Chittagonian ports of Dianga and Angaracole nearly 28,500 out of 42,000 prisoners taken by the Mughls and Ferinjis in Lower Bengal and Orissa, besides 6,000 others. H.E.S.]

⁴ [This Portuguese fort at Saugor was first established after the fall of Hughli in 1632 (Josson, *op. cit.*, p. 363)]

⁵ A Relation of an unfortunate Voyage to the Kingdom of Bengala. By Mr. Glanius, London, 1682, 8vo. This is merely an English translation of "Vervarelyke Schip-Breuk van t'oost Indisch Jacht Ter Schelling under het landt van Bengale." Amsterdam, 1675, 4to. The author is Frans van der Heiden.

The capture of Hughli in 1632, and the slaughter of its brave defenders, was the death blow to Portuguese prestige in Bengal and in 1666, when Sháyista Khán determined on annexing Chátgáon and the islands at the mouth of the Meghna, he threatened the Portuguese with the fate of the Hughli garrison if they did not submit and become subjects of Sháh Jahán. The evil deeds which provoked the Muhammadan viceroy to interference are detailed by Bernier, a most prejudiced authority. Bad as the Portuguese undoubtedly were, their cruelty was exceeded by that of the Mags, who penetrated into the interior pillaging and ravaging the country, and leaving behind a name hateful even to modern Bengalis.

On the appointment of Sháyista Khán in 1664 to the government of Bengal, an expedition was organised against the Portuguese banditti. The fleet, a very powerful one, supported by several Dutch vessels, being put into the highest state of efficiency, was directed to act in concert with the army preparing to march on Chittagong. Alarmed by these preparations, and won over by bribes, many Portuguese left Chittagong "In forty or fifty galliasses," and gave themselves up as prisoners to the Nawáb at Dacca, who overwhelmed them with favours. Many were induced by large pay to enlist in the Imperial army, while a settlement at Farangí Bazár was established for the old and physically unfit.

[p. 416] When the army and fleet of the Mughals advanced upon Chittagong, the island of Sondíp was occupied by Diláwar, a Muhammadan, and troops in league with the Mags. A detachment was landed, the fort was besieged and taken, but a Mag flotilla coming in sight, the troops were hurriedly withdrawn, and the transports sailed to Nawakháli. In the following December [Nov. 1665] a larger force occupied the island, and held it. The main army then advanced along the coast, meeting with little opposition. Letters were sent to the Portuguese in the Mag service offering advantageous terms on submission. Several of these letters being intercepted, the Mag Rájah tried to induce the soldiers to remove into the interior of Arakan, but refusing to do so, they finally left in a body for Bengal. On the 18th December, 1665, they arrived at Nawakháli, and the leaders set out for Dacca, where they were graciously received by the Viceroy. Some were enrolled as volunteers under an Englishman named Captain Moore,¹ and joined in the expedition against Chittagong.

1. Nothing further has been learned regarding this soldier, but at the present day a small "Tappá" or division, in Bikrampur is named after him. [As Father Hosten points out, Dr. Wise has strangely misinterpreted the Portuguese phrase Captao Mór. It merely refers, as can be seen from Shiltahuddin Tālish's account of the conquest of Chittagong (J. N. Sarkar, *J.A.S.B.*, 1907, pp. 405-425) to the Chief Captain (Mor=Major) of the Portuguese, and not to an Englishman at all.]

On the 26th January, 1666, the garrison of that town capitulated and the Portuguese soldiers who had distinguished themselves in the campaign received grants of land.¹

With the capture of Chittagong and the pacification of the Eastern frontier the history of the Portuguese, as an independent and aggressive power, terminates. Throughout the Dacca and adjoining districts numerous settlements of Portuguese Christians are still to be found, but none can claim relationship with the soldiers of the seventeenth century.²

The following sketch of the Portuguese mission since its foundation in Bengal embraces the origin and history of these settlements.

The Portuguese mission in Bengal was founded in 1599, by the Augustine, Archbishop of Goa. On arrival at Hughli the missionaries obtained a grant of rent free land. This grant originally consisted of 260 acres, but during last century it dwindled one-half. A chapel was built at Bandel, near Chinsurah and dedicated to "Nuestra Senora del Rosario." The first "regent" was Fre Bernardo de Jesus, and to this church all the other parochial churches in Bengal were affiliated.

Since the beginning of the seventeenth century the Bishop of S. Thomé, or Mailapur, in Madras, has been the head of the Bengal Church. In 1606, Pope Paulus V made S. Thomé an episcopal see and by consistorial letters annexed to it the provinces of Bengal, Pegu, and Orissa. The special mission to [p. 417] Bengal was vested in the Augustinian monks of Goa, upon one of whom the title and prerogatives of Vicar General were conferred.

A tradition is preserved by the mission, that in 1599, one of their number, Fre Luis des Chagos, was stopped on his way to Silhet by certain Christians who besought him to relieve them from landlord tyranny. On his return he bought the villages and lands of Nágori and Bhágori in Bhowál, settling in them thirteen families of Christians, including a converted Bráhmín.³ A piece of land was also purchased at Náráyan-dih, a suburb of Dacca, which still belongs to the mission.

¹ [For a fuller account of the conquest of Chittagong cf. Shihābuddīn Tālish's continuation of the *Fathiyyah-i-ibriyyah* (abstract by J. N. Sarkar in *J.A.S.B.*, 1906, pp. 257-260, and translation in *J.A.S.B.*, 1907, referred to in previous note). H.E.S.]

² [If Dr. Wise had inserted the words 'so-called' before "Portuguese Christians," this sentence would have been much nearer the truth. But apparently, from what he says later the possibility that the possession of a Portuguese name did not necessarily involve the owner's descent from a Portuguese, did not occur to him. H.E.S.]

³ [As Father Hosten points out, the date of 1599 is impossible. The real name of Fre Luis das Chagos (of the 5 wounds) was Luis dos Angos, and he died in Sylhet in 1696 (*O Chronista de Tissuary*, Nova Goa, 1867, Vol. II, p. 58) quoting from a report of the Father Provincial of the Augustines dated 1750. Fre Luis had bought land at Nágori to settle

The church of Nágori, however, bears the date 1664, and is dedicated to St. Nicola da Tolentino,¹ the patron saint of the Augustine order.

During the seventeenth century the success of the Augustine monks was most extraordinary. In 1602, three years after its foundation, the Hughli mission consisted of over 500 persons, among whom were many "grands seigneurs," and by the end of the century the sacrament was administered to 10,000 converts.

The parochial church of Dacca, dedicated "a la Assumpcion de nuestra Senora" was at Tezgaon on the north of the city, and its graveyard still contains the oldest tombstones and epitaphs in Eastern Bengal.² The early history of the mission is very interesting. Its success was chiefly owing to the conversion of a member of a distinguished Hindu family. The son of the Zamindár of Bosnah,³ one of the twelve

there the remnants of the Christians of Don Antonio de Rozario, the converted son of the Rájá of Busna (*vide infra*). This settlement, according to the same authority, took place in 1695, though the date given by Dr. Wise in his next paragraph for the foundation of the Nágori Church, viz. 1664, agrees with that quoted by Father Hosten from the *Annuario da Archid. de Goa* for 1897 (pp. 193-194); *vide* his notes on Archdeacon Firminger's translation of Père Barbier's letter of 1723 (*Bengal: Past and Present*, 1910, p. 223). 'Bhagori' may be the village of Pangora near to Nágori; and the mention of a converted Brahmin is presumably a reference to Don Antonio who belonged to this caste. H.E.S.]

¹ S. Nicola da Tolentino died A.D. 1308, and was canonized by encyclical letters of Pope Eugenius IV., in 1446. [The Nágori Church was apparently the 'principal church' of the Christians visited by Bishop Laynez in the spring of 1714, on his return towards Dacca from Rangamati (Assam) and Husainpur (Mymensingh) *cf.* Jossou *op. cit.*, 1914, pp. 5-7. H.E.S.]

² [According to the *Annuario da Archid. de Goa* for 1897 (quoted by Father Hosten on p. 23 of his notes on Père Barbier's letter already referred to) the church of Tezgaon dates from 1714. The earliest monumental inscription noticed by me in the church during a visit in 1913, was dated 1725. As noted by the late Father Altenhofen, Dr Wise here confuses two churches. The original parochial church in Dacca was dedicated to Our Lady's Assumption; that at Tezgaon to Our Lady of the Rosary. The present Portuguese church in Dacca (which was only built in 1815) bears the name of Our Lady of Piety. H.E.S.]

³ Donde assiste Don Antonio del Rosario, hijo del Rey de Busna, a quien no solo convirtieron nuestros religiosos sinoque le redimio del cautiverio el Padre Manuel del Rosario, p. 24. "Christiandad del Japan." Su Autr. El P.M. Fr. Joseph Sicardo. En Madrid 1698 fol.

[For full details of this convert of Busna (N.W. Faridpur) *cf.* Jossou. *op. cit.*, pp. 375-381 and Hosten in the *Catholic Herald of India*-weekly numbers from Sept. 19th to Dec. 26, 1917. Antonio- his Hindu name is not recorded-had been captured by the Maghs in 1663 and was ransomed by Father Manuel del Rosario of Chittagong. Being a Brahmin he was at first most unwilling to become a Christian, but St. Antony appeared to him in a dream, and this 'sign from heaven,' led him to be baptised. On returning to Eastern Bengal about 1670 he induced within a short time over 30,000 persons to embrace the Christian faith; but the allegiance to Christianity of the Kumar's people at all events seems to have

Bhúyas, moved by the preaching of the monks, was persuaded to become a Christian. Being baptized as Don Antonio del Rosario, he induced his wife and brethren to follow his example.

Manrique,¹ a Spanish Augustine monk, describing Dacca in 1641, mentions that families of Christians resided in the suburbs, at Náráyandih, "Manaxor," and "Pulgari," and that a handsome though small, convent, as well as a good church, existed. Much intolerance was practised by Muhammadan Mullas, Pirs, and Darweshes, who denounced all Christians for eating animals slaughtered in an unorthodox way. The Nawáb, however, protected them and the position of the mission was so secure that another chapel and residency were about to be built in Dacca as well as two in the Bandels of Srípúr and Noricol.² In [p. 418] 1679 the converts in Eastern Bengal

been largely nominal and Don Antonio had constantly to be rescued from the debtors' prison at Dacca where he was consigned for debts, said to have been contracted in converting his ryots to Christianity. About 1685 the Provincial of Goa "ne tarda pas á retirer ses missionnaires de ce champ infécond," and finally, in 1695, the scanty remnants of the 30,000 with some others whom the Father himself had converted to the faith, were removed by Father Luis dos Angos to Nágori which had been bought by this Father to prevent his Christians from being molested by non-Christian landlords. Don Antonio is said to have gone there too, and died in the end a good Christian.

From a list of places given in Father Antonio da Magalhães' letter of 1678, especially the portion reprinted by Father Hosten in the *Catholic Herald* for October 17th, 1917, it appears that Don Antonio's work of conversion was chiefly carried on, not in Faridpur or Jessore, as one might have expected, but in the north of the Dacca and south of the Mymensingh districts along the Lakhya and Brahmaputra (*cf.* the villages Sagordi, Simulia, Egarasindhu and Dugduga). From a mention of Sirot and Baldacal, he may also have worked in Sylhet. H.E.S.]

¹ "Itinerario de las Misiones que hizo El Padre F. Sebastian Manrique." Roma, 1649, 1to. [Previous to his visit to Bengal in 1841, Manrique had come to Hughli in 1628 and from there had gone to Arrakan where he remained from 1629 to 1636. He died in 1669 (*vide* Father Hosten's edition of the translation of the first 20 of the 89 chapters of Manrique's work in *Bengal: Past and Present* for 1915-1918.) H.E.S.]

² [In order to amplify Dr. Wise's excerpt from Manrique's Chap. V — besides correcting slight topographical inaccuracies—I quote the relevant passages from Father Cardon's translation (*Bengal: Past and Present*, 1916, and Vol. XIII, pp. 2 and 3). "The City of Daack, or Dacca, as they say in Portuguese, is the largest of all the cities of Bengala. . . . It is situated in a beautiful and very extensive plain on the bank of the famous and, at this place, fertilising Ganges. It extends for over a league and a half along its banks, and has as its ornaments at both ends the famous suburbs of Manaxor, on one side, and of Narandin and Pulgari on the other. Those suburbs are inhabited by Christians, and it is there my holy Order possesses a pretty, though small, Convent with a good Church. . . . I was told that the inhabitants of this Gangetic emporium and its neighbourhood amounted to more than two hundred thousand, without counting the strangers. They come hither in the interests of their trade, to avail themselves of the great opportunities the city affords them; others the sons of Mars, come to enjoy on these

were estimated at 30,000, and Don Antonio, attached to the Church of Noricol in Ráj nagar, had joint charge with the "rector" of 1,000 Christians.

At the end of the seventeenth century the Portuguese churches in Eastern Bengal and Assam were those of "Chandpur" in Tipperah, Banja,¹ Pippli, Balasor, "Tambolin" [Tamluk, Midnapore], Jessore with 300 Christians, Hughli, Tezgáon, Dacca, and "Arrayal de Bencamatis," or Rangamati in Assam. In 1713 Laynez, Bishop of S. Thomé, visited Bengal. He found Christian congregations at Hughli, Pippli, Chittagong Dacca, Husainpúr in Mymensingh, [Nágori²] and Rangamati, in Assam.

It is difficult to arrive at any certain conclusion regarding the number of Portuguese Christians at different periods. Bernier was told by the priests that Hughli contained over 8,000, and that in other parts of Bengal there were 25,000. Monsignor Cerri,³ secretary of the congregation De propaganda fide, writing about 1680, estimated the number at 22,000 divided into eleven parishes, each of which had a vicar and a curate. It was, he admits, hard to find any adult converts save Portuguese slaves, who had been bought and made Christians. In 1840, according to Mr. Taylor,⁴ the number belonging to the

frontiers (*fronteras*) the large mainàs, or pay and salary, which are given there. Not less marvellous is the abundant supply of implements and eatables. Anything man's desire can wish for is to be found there, especially in the numerous Bazars or markets (*Plaças*). I would wonder there at the sight of the quantity and variety of fowls and wild birds, all of them sold alive, and so cheap that it was like giving them away for nothing. For less than a silver real (four annas), in fact, one could very often get twenty turtle doves or fifteen big wild pigeons, and all the other things went for the same price, more or less. . . . The wealth of this city is greatly due to the fact that it has in its neighbourhood the fertile and delightful kingdoms of Bacala (North Bakarganj), Solimanväs (South Bakarganj) and Catrabò (North of the present Dacca District). In this city (Katrabo) the first Religious built another Church and Residence, and a little after two others in the Bandels of Siripur and Noricul." Manaxor is Manaswar, a large village at the western extremity of Dacca city, and Narandin is Náráyandia, at the eastern end of Dacca. Both are ancient settlements, post Gupta coins having been discovered at the former, while at Narayandia there is still a mosque with inscription dated 861 A.H. (1457 A.D. : *vide J.A.S.B.*, 1910, pp. 141-145). Pulgari, as Father Niard has already suggested to Father Hosten, may be Phulbaria, a mile to the N.W. of Narayandia, near the present railway station. Some Feringi Christians still reside there. H.E.S.]

¹ [Dr. Wise adds in the text "perhaps Banga in Farridpúr"; but Father Hosten in his note 5 to Chap. V of the translation of Manrique's *Itinerario Oriental (Bengal: Past and Present*, 1910, Vol XIII, pp. 19 and 20.) shows that it was (like Pippli and Balasore) not far from Tamluk—probably on the Haldi River.]

² [Cf. Note 4, p. 35.]

³ "An account of the Roman Catholic Religion throughout the world" translated by Sir Richard Steele. London 1715.

⁴ "Topography of Dacca", p. 252.

three parishes of Dacca, Bhowál and Husainábád was 10,150. In 1873, the Portuguese vicar of Husainábád calculated that 3,000 persons belonged to his church, while the French priest of the adjoining parish [Bandura Golla] rated his at 1,200.

The census of the Dacca Farangís for 1877 and 1878 has been kindly furnished by Mr. R. D. Lyall, C.S., who considers the returns of the French Mission more exact than the Portuguese :—

<i>Mission.</i>	<i>Parishes.</i>	1877.	1878.
Portuguese	{ Dacca	103	212
	{ Nagori	1,221	1,265
	{ Tezgaón	140	122
	{ Husainábád	2,820	2,823
		<hr/> 4,284	<hr/> 4,432
French ..	{ Bandura }	5,000	1,440
	{ Tumiliá }	.	2,020
	{ Sualpur }	.	[600?]
			<hr/> [4060]

The total number of Dacca Farangís may therefore be estimated at 8,500, but nearly 2,000 under the French fathers, being converted natives, have no right to be called Farangís at all.

[p. 419] The system by which the Portuguese made converts was not one that could prosper. Children of both sexes, either kidnapped or purchased, were made Christians, while girls after baptism became concubines and their offspring Christians. At one time this trade flourished to such an extent that the slave dealers boasted of having converted more Hindus in a year than all the missionaries of India did in ten. When the Portuguese power in the Delta was overthrown slave-catching ceased, and a final blow was dealt to this novel plan of converting the natives. With the seventeenth century the Portuguese mission ceased to triumph, and during the last century and a half it has not held its own against Muhammadan aggression. Many reasons for this failure are assigned, but Monsignor Cerri refers it to the immorality of the priests and laity, the former leading loose lives, exhibiting great ignorance and extreme avarice, and retaining large staffs of servants given up to all manner of vice and lewdness. The Goa priests, to whose care the Christians of Bengal were confided, have for many generations been half-castes, born and bred at Goa. Each parish church, moreover, is endowed with rent-free land, or with property held and managed by the vicar. Communication with S. Thomé being irregular and uncertain, the internal economy and discipline of the parishes are not interfered with as long as the annual donation is sent to Goa. An illiterate priesthood, a rich isolated establishment, and a simple credulous laity, was a combination of evils sufficient to ruin any church. No one who has given a thought to the

Portuguese clergy of Eastern Bengal can wonder that they, inheriting a faulty system from their predecessors, have failed to instil new life among their flocks. Occupied as they generally are with the management of valuable church property, and of law suits inseparable from the possession of land in Bengal, little time, and less zeal, are expended on the spiritual welfare of their tenantry. A school is always attached to the church, but the instruction given is of the most rudimentary kind, and no attempts are made to raise the standard of education.

Such being the actual state of matters, it is not surprising that the congregation *De propagandâ fide* has for long been striving to gain possession of the churches and endowments of the Portuguese mission. Various law suits have been instituted, and in several instances, as at Dacca and Chittagong, the decision of the courts has been in favour of the congregation.¹ The French mission, guided by the able and benevolent Monseigneur Dufal has within the last fifteen years [i.e. prior to 1875] infused new spiritual life among these neglected Christians. The good bishop, assisted by an admirable staff of clergy, devote themselves to improving the people, and their schools are crowded with hundreds of [p. 420] boys eager for knowledge. The nuns of the "Sacré Cœur" are engaged in an equally beneficent task. To them is confided the religious and moral training of the girls, and the schools conducted by them are models of order and propriety.

Two centuries ago the Portuguese Christians were divided into three classes "*reynol*," including those born in Europe. "*castiço*," those born in India of Portuguese parents, and "*mestiço*," or half-castes. These three classes no longer exist. The modern Christians are for the most part the offspring of the last and most numerous division, but they have lost all traces of their European parentage. Here and there a face characterised by large and rugged features strikes a stranger accustomed to the regular and more delicate lineaments of the average Bengali, but in complexion the Farangis are as swarthy as a Chandâl. The distinctive and favourite appellation of these Christians is Farangî, but the natives nickname them the "*Kâlâ Matti*," earth coloured Farangis.

The Farangî peasant dresses exactly like the Hindu or Muhammadan ryot, but on gala days, especially among the wealthier classes, the peculiar costume, still worn at Chittagong,

¹ [The only case known to me in Eastern Bengal was that regarding the right to appoint to the living of Padri Sibpur, Bakarganj, which was ultimately lost by the Propaganda (*vide* Beveridge's *Bakarganj*, pp. 107 and 108). The dispute was finally settled by a Concordat between Leo XIII and the King of Portugal in 1886, whereby the Portuguese Mission only retained jurisdiction over the churches and property they then possessed. If any members of their flock chose to go elsewhere, they passed under the jurisdiction of the Bishop of Dacca. H.E.S.]

is put on. It consists of striped drawers, a shirt, or cloth doublet, a skull cap with flaps fastened behind, and slippers. The women on festivals wear a white lace veil, or mantilla, covering the head and shoulders, while the common dress is a petticoat and a loose muslin jacket.¹

In Bhowál the title Boeto (Sanskrit Bhakta, a worshipper), is exclusively applied to the families of the first settlers, but in other places the name, it is said, was given to the secretaries who also acted as catechists in the absence of the pastor.²

According to the French clergy, the Dacca Farangis are more moral, but quite as improvident as those of Chittagong. A poor man will not hesitate to borrow three hundred rupees for his marriage, while the rich will often squander eight hundred for the same purpose. The Bazár rate of interest being exorbitant, the borrower becomes impoverished for life, and rarely succeeds in clearing himself of the debt. The large majority of Farangis in Eastern Bengal are simple peasants, but many young men go to Calcutta, taking service as cooks, or undertakers ("Poberies" from the Portuguese Pobre, poor).

The peasantry are industrious though poor. They cultivate the church lands, but the profit of their toil goes to Goa to support churches and monasteries. On the whole, their position is an [p. 421] unenviable one, being worse than that of ryots under good native landlords, who generally do something for the improvement of their estates.³

The minor excommunication, depriving the sinner of the sacraments until he yields and confesses his faults, is at once a powerful and convenient weapon for subduing any quarrelsome ryot. When the priest is only the farmer and a Bráhmaṇ the landlord, the edifying spectacle is seen of a peasant appealing to the latter for redress, who if he thinks the punishment excessive, issues an order to readmit the accused to all the privileges of the church, and very rarely is the order disobeyed.

¹ For further particulars regarding the "Feringhees," see "Calcutta Review," Vol. liii, for 1871. [For the clothes worn at weddings *vide* Pl. I, (3), and Pl. II H. E. S.]

² Père Barbier, however writing from Chittagong in 1713, says: "Les Chrétiens du dedans des terres, nommés Boctos." *Lettres Edifiantes* ii, 590. [These still exist near Sultanpur, 15 miles N.E. of Chittagong, but they have lapsed to a sort of Hinduism. They claim to be Kshatriyas, but communication with them is regarded as polluting by orthodox Hindus. Most of them serve as musicians and singers at festivals, though of late some have taken to business (Letter from Father Altenhofen quoted by Father Hosten in *Bengal: Past and Present*, 1910, p. 221.)]

³ [This paragraph certainly gives a wrong impression—at all events of things as they now are. The Mission under the Bishop of Dacca has no church lands; and any surplus on the working of the Zemindári of the Portuguese priests is sent, not to Goa, but to Meliapur for the assistance of other missionary enterprises. I am extremely doubtful also of the accuracy of the next paragraph, save possibly in a few isolated cases in the past. H.E.S.]

The majority of Farangis read and some write Bengali, which has become the vernacular of all classes. Each individual is given at Baptism a Portuguese name, but an assumed Bengali one is commonly used. A few Portuguese words are still spoken, and the names of festivals and religious ceremonies are the same as in Europe. Yet, strange to say, Lent is called "Roza," the Persian name of the Ramazán fast. No Farangi possesses a Bible¹ but each one wears a rosary and a crucifix. On Fridays they eschew flesh and during Lent observe a strict fast. In most houses a recess, containing an altar, or "Prie-dieu," is found, before which a lamp is lighted every evening, and on which flowers are arranged on "festá" days.

On account of the prejudices of Hindus and Muhammadans there is no Farangi shopkeeper in the villages of the interior. In Bhowál, swine are generally kept and large quantities of ham, bacon, and pork sausages, exported to Calcutta.²

Farangis live in friendship and neighbourly sympathy with the natives, and are generally esteemed for moderation and liberality. They cannot, however, be considered the equal of the frugal, sober, and industrious Hindu or Muhammadan ryot. In blind subservience to their priests, in superstition, and in servility to oppression, the Farangis are on a par with their neighbours, but in their intemperate habits, against which the pulpit fulminates in vain, they sink below the non-Christian races around them.³

APPENDIX III.

"HISTORICAL PRÉCIS OF THE CONNECTION OF THE CONGREGATION DE PROPAGANDÂ FIDE WITH EASTERN BENGAL."

(Together with recent figures relating to the number of Indian Catholics in the Dacca District).

Through the courtesy of the Rev. Father A. E. Blin, C.S.C., Vicar of the Cathedral, Dacca, I am enabled to add the following notes on the Propaganda Mission to Eastern Bengal during

¹ ["There was no translation of the Bible for Catholics till lately when the Bishop of Krishnagar published the New Testament; but in Dr. Wise's time there were catechisms, prayer-books and many other things. Dr. Wise did not know that the three first books ever published in Bengali, dating from 1743, were published by the Augustinians. The Jesuits who laboured among the Christians of Don Antonio had been active too at preparing vocabularies, a grammar, a catechism, etc. H.H. 7-10-13"]

² [Swine are no longer kept, so this trade has ceased. H.E.S.]

³ [As in the case of most other Bengalis of the present day, blind subservience to any body is certainly a thing of the past and the common complaint of the priests is the refusal of their flock to listen to reasonable advice or admonition. In the case, however, of intemperance a distinct change for the better is said to be perceptible. H.E.S.]

the last 85 years, collected from two volumes of typewritten, transcripts from the *Catholic Herald* and *Indo-European Correspondence* (1845-1912) in the Library of the Bishop of Dacca.

From 1834, when the Rev. Dr. St. Leger was appointed by the Propaganda Vicar Apostolic of Bengal, till 1845, Eastern Bengal formed part of the Vicariate of Calcutta. In the latter year steps were taken to erect this portion of the Province into a separate Vicariate, the first acting Vicar Apostolic being the Rt. Rev. Dr. Thomas Olliffe.¹ During his time, in 1847, the first Sisters (of the Loreto Order) came to Dacca and established the Nazareth Convent in the house next to St. Thomas' Protestant Church. On the death of the Most Rev. Dr. Carew in November 1855, Dr. Olliffe assumed charge of the Western Bengal Mission and for the next five years Eastern Bengal was under the charge successively of the Very Rev. A. Goiran, Vicar General (till 1857) and the Rev. L. A. Verité of the Congregation of the Holy Cross (Pro-Vicar Apostolic). This Order of Priests, whose mother-house was at Le Mans, France, had first come to Eastern Bengal in 1853. On the death of Father Verité in 1859, Dr. Peter Dufal of the same Congregation, who had come as a Missionary to Bengal in 1857, was appointed in July 1860 as the second Vicar Apostolic and continued to hold charge of Eastern Bengal for the next sixteen years, with the exception of a short interval in 1867-68 when he went back to France for about a year as Superior General of the Congregation of the Holy Cross.

In 1876, on the resignation from ill-health of Bishop Dufal² the Mission passed for a time into the hands of the Benedictines, owing to the crippling of the resources of the Congregation of the Holy Cross by the Franco-Prussian war. The Rev. Father Cuthbert Downey, O.S.B., acted for two years as Pro-Vicar Apostolic, but in 1878 the Rt. Rev. Dr. Ballsieper, O.S.B., was appointed as third Vicar Apostolic of Eastern Bengal. During his Vicariate, in 1882, Nuns of Notre Dame des Missions of Lyons first came to Chittagong; and in 1888 the Mission in Dacca was again placed in the hands of Fathers of the Order of the Holy Cross.

The final settlement of the dispute between the Propaganda and Padroado (Portuguese Mission) was arrived at in 1886 when a fuller concordat than that of 1857 was drawn up and a Bull ('*Humanae Salutis Auctor*,' 1 Sept., 1886) was issued to give force to the settlement. At the same time, the Indian Hierarchy was established, and the whole of the country divided into provinces, Dioceses, and Prefectures Apostolic.

¹ Dr. Olliffe was confirmed as Vicar Apostolic by a decree of the Sacred Congregation de Propaganda Fide, dated 15th February, 1850.

² Mgr. Dufal, who held the title of Bishop of Delcona, *i.p.i.*, died at Neuilly-sur-Seine in 1898, aged 76.

Mgr. Ballsieper became the first Bishop of Dacca.¹ On his death in April 1890, the aged Mgr. Augustin Louage C.S.C. was made Bishop (in 1891), and when he, in turn, died in June 1894, he was succeeded by the Rt. Rev. Father F. J. Hurth. In 1898 Sister Catechists of the Order of Mary Immaculate, Paris, arrived in Dacca to take the place of the Sisters of the Holy Cross who had withdrawn the previous year. Bishop Hurth continued his work until 1909, when he resigned owing to ill-health, and the Rev. Father F. F. Linneborn, C.S.C., became the fourth Bishop of Dacca. Bishop Linneborn died in July 1915 and was succeeded by the present (fifth) Bishop, the Rev. Dr. Joseph Legrand, C.S.C.

Beyond one allusion to Nuns of the Sacred Heart of Jesus at Chittagong in the *Indo-European Correspondence* for Dec. 29th, 1886, I have been unable to verify the reference by Dr. Wise to Nuns of this Order carrying on work in Eastern Bengal. At the present time (1921) the nuns both in Dacca and Chittagong belong to the Order of Our Lady of the Missions. They succeeded the Sisters of Mary Immaculate in 1912.

As regards the present number of Indian Catholics in the Dacca District the subjoined table gives the latest figures recorded by the missionaries themselves. The Portuguese Mission figures are quoted from the Catholic Directory of 1914; while those under the Dacca Mission give the result of a Mission Census in 1911.

Name of Parish.			Number recorded.
<i>Portuguese Mission</i>			
1. Hashnábád .. ..	..	..	3,232
2. Tutail .. ..	..	..	912
3. Dacca .. ..	..	..	66
4. Tezgáon .. ..	..	..	225
5. Nágori .. ..	..	..	2,054
TOTAL (P.M.)			6,489
<i>Dacca Mission.</i>			
6. Bandura Golla .. ..	..	..	2,217
7. Solepur .. ..	..	..	945
8. Tunilia .. ..	..	..	3,973
9. Maulsaid .. ..	..	..	280
10. Bagunbari (now removed to Kamalapur and other villages near Sabhar)			150
TOTAL (D.M.)			7,565

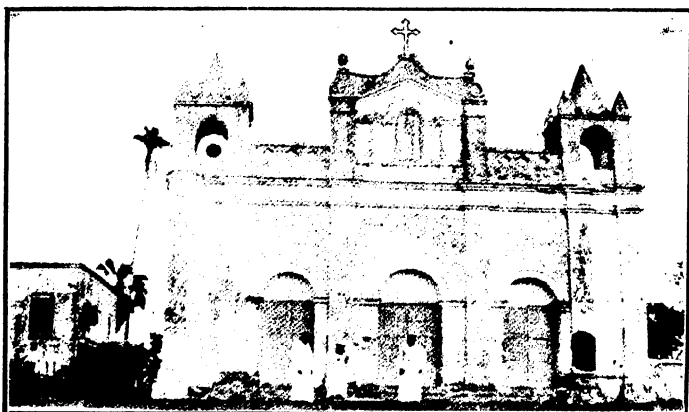
The grand total is therefore 14,054, or an increase of about 5,500 (or nearly 65%) during the 35 years that elapsed between 1878, the date of the collection of the figures given in the last column of the table on p. 38, and 1913. The Dacca Mission is increasing at nearly twice the rate of the Portuguese Mission

¹ The previous Vicars-Apostolic had only held titular Bishoprics in *partibus infidelium*.

the proportions being 86% to 46%. This is due almost certainly to emigration from churches under the Portuguese to areas under the Bishop of Dacca. The total rate of increase is about 1.9% per annum as compared with 1.4%, the rate of increase recorded in the Census for Dacca District generally between 1881 and 1911.

It is only right to add that a considerable discrepancy exists between the figures stated above and the government census figures of 1911 and 1921. The 1911 census gave 11,468 as the total for the Indian Roman Catholics in Dacca District. It may very possibly be the case that the Mission census included family members who were away on service in Calcutta and elsewhere when the government census was taken: while, on the other hand, some of these christians may have returned themselves on the government forms as Anglo-Indians. The preliminary figures at the recent 1921 census (for which I am indebted to Mr. J. H. Lindsay, C.S., District Magistrate, Dacca) showed a total of 12571—an increase over the 1911 total of 1103 persons, or 9.6%. The total population of the Dacca District increased during the same decade by 5.8%.

H. E. S.



1.

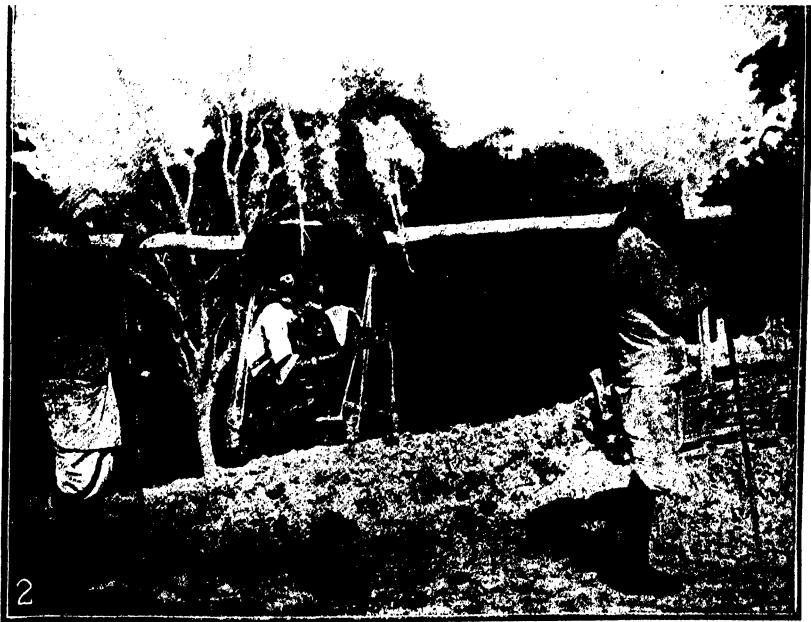


2.



3.

ROMAN CATHOLIC CHRISTIANS OF DACCA DISTRICT.



ROMAN CATHOLIC CHRISTIANS OF DACCA DISTRICT.



Photograph by

Survey of India Office Calcutta, 1903

INSCRIPTION FROM SYLHET RECORDING THE DATE OF THE
FIRST MUSLIM CONQUEST OF THAT COUNTRY. (203 A.D.)

29. Contributions to the History and Ethnology of North-Eastern India—IV.

By H. E. STAPLETON, I.E.S., *Special Officer, Dacca University*

BENGAL CHRONOLOGY DURING THE PERIOD OF INDEPENDENT MUSLIM RULE.

Part I, 685-735 A.H. (1286-1334 A.D.)

Shortly after the issue, in 1911, of the first Catalogue of Coins in the Shillong Cabinet the writer had the singular good fortune for a numismatist of discovering a Muhammadan cultivator at Singuri, on the Lakhya River, north of Dacca District, who was in possession of a large number of mediaeval Bengal coins. Among the coins that he produced when I first visited his village was one of the hitherto almost unknown Hindu King Danujmardana (c. 1416 A.D.); and in consequence of winning his confidence at our first interview, the man gradually got into the habit of bringing me coins to select from whenever he found himself in want of ready cash. In this way, within two or three years, a very representative series of Bengal coins of the 8th and early 9th centuries of the Hijra was accumulated, and, in 1914, I felt myself in a position to carry out for at least this period of Bengal history the same sort of survey that I had made in 1910 for the history of Assam from 1543 A.D. to the advent of British rule. Not only was my own collection available, but there had been important finds of coins of the same period at Enāyetpur, Mymensingh in 1909; at Purinda, Dacca, in 1910; at Rupai-bāri, Nowgong, in 1911; and at Kastabir Mahalla, Sylhet, in 1913; all of which were then uncatalogued. The war, however, intervened; and I was only able, before leaving India, to describe a few coins of the same provenance as my own in the *Dacca Review* for April, 1915.

On my return to India at the end of 1919 I found that the enforced delay had not been without a large degree of compensation. In the interval, a supplement to the Shillong Catalogue had been published and further interesting finds of mediaeval Bengal coins had been made at Rautkhali (Sylhet) 1914, Khulna District in 1915, Kankaribāgh (Sylhet) 1916, Bashail (Sylhet) 1917, and Murapārā (Dacca District) in 1919. To some extent I even found myself forestalled by a discussion of the Murapārā find that obtained for its author (Babu Nalini Kanta Bhattasālī, M.A., Curator, Dacca Museum) one of the Griffith prizes of the Calcutta University in 1920; and

I am glad to acknowledge, to begin with, that his careful description of the Murapārā coins has been of much assistance to me in discussing the period covered by these particular coins. I regret, however, I cannot agree with many of his conclusions (especially when he bases them on unwarranted criticism of Mr. Thomas' pioneering work on Bengal numismatics); and as, in the cases of most of the Kings concerned, independent material is now available on which a complete historical analysis of a considerably longer period than the Curator of the Dacca Museum dealt with can be based, I am in a position to carry out the survey of the field that I was on the point of making in 1915 with even greater prospect of arriving at the truth than I could have hoped for six years ago.

Before passing on to the paper, I should also like to acknowledge the generous assistance that I have received from all custodians of national and provincial collections of coins that it was necessary for me to consult. Mr. J. Allan, of the Department of Coins and Medals at the British Museum, besides supplying me with casts of an important coin that does not seem to have been previously noticed, afforded me free access to the Bengal coins in his charge. Dr. D. R. Bhandarkar and Monsieur A. Foucher, Superintendents of the Archaeological section of the Indian Museum, allowed me to check the readings of all the Bengal coins in the Indian Museum cabinet; while the courtesy of Mr. A. W. Botham, C.I.E., Chief Secretary to the Government of Assam, as well as that of Monsieur Foucher, has enabled me to reproduce several important coins in Plate X. The opportunities I was given by these gentlemen of re-studying every Bengal coin included in the Indian Museum and the Shillong supplementary Catalogues will sufficiently explain the *variae lectiones* in the case of certain coins already published. I would also mention in conclusion that I am indebted to Babu Nalini Kanta Bhattasālī for the excellent photographs of the coins given in Plate X.

THE BALBANĪ KINGS OF BENGAL.

Nāṣiruddīn Maḥmūd, c. 682–690 A.H.

The annals of independent Muslim rule in Bengal are usually taken to commence with the reigns of Fakhruddīn Mubārak and his rivals 'Alī Shāh and Ilyās Shāh, but except for the incidents that led to the extinction of the earlier line of Balbanī Kings and the temporary re-appointment of Governors by the Dehlī Sultān Muḥammad ibn Tughlaq between 725 and 735 A.H., there is nothing to distinguish the status of the Balbanī Kings from that of the Muhammadan (and Hindu) Kings who ultimately succeeded them. I therefore propose to begin with a survey of the numismatic and other evidence that

now enables us to fix the chronology of the Balbanī Kings with a fair degree of accuracy.

The immediate cause of the establishment of the first descendant of the Dehli Emperor Balban, as ruler of Bengal, was the successful suppression by Balban of the insurrection of Tughril, a favourite slave whom he had made Governor of Bengal. About 680 A.H. Tughril had become very powerful, owing to the booty he had obtained from a successful intervention in the affairs of the independent Hindu Kingdom of Tipperah, and had been induced to declare his independence under the title of Sultān Mughisuddīn.¹ Two generals who were sent against him by Balban were defeated, but when finally, about 682 A.H., Balban in person took the field, Tughril was slain on the borders of Tipperah. After savage retribution had been made in Lakhnautī on Tughril's adherents, Balban returned to Dehli, leaving Bengal in charge of his younger son Maḥmūd, commonly known as Bughrā Khān, who was invested at the same time by his father with many of the insignia of regal power. Four years later Balban died, having previously nominated Kai Khusrū, the son of his deceased elder son, as his successor at Dehli. The nobles then in power about the throne preferred, however, a son of Bughrā Khān called Kaiqubād, whom they made Sultān with the title of Mu'iz-zuddīn. This led Bughrā Khān to declare his independence in Bengal with the title of Nāṣiruddīn, and he even made a faint-hearted attempt to claim the throne of Dehli by force of arms. He was ultimately, however, persuaded to return to Bengal without fighting, nor did he even take any active steps to revenge the death of his son, two years later, in 688, when Kaiqubād was assassinated and Jalāluddīn Khiljī became Sultān of Delhi in his stead.

All this we know from the narration of Ziāuddīn Baranī;²—but in spite of Baranī's assertion that, on the accession of Kaiqubād, Maḥmūd struck coins, bearing his newly assumed title of Nāṣiruddīn, neither coins nor inscriptions in the name of Nāṣiruddīn have yet come to light, and thus, for historical purposes, this King must remain for the present almost a cypher. The only fact that corroborates Baranī's account

¹ Babu Kailash Chandra Singha, on pp. 30-31 of his *Rājamālā* (a history of Tipperah, compiled from local records: printed in 1303 B.S. = 1896 A.D.), states that Tughril's reason for invading Tipperah was to support Ratnafā (the exiled youngest son of Mahārājā Dungurfā of Tipperah) against his eldest brother Rājāfā, who had succeeded his father on the throne. Rājāfā was slain in battle, and when Ratnafā ascended the throne he presented Tughril with a *Vek-Mani* (Jewel from a Frog's head) and 100 elephants. In return Tughril conferred on him the title of Mānīkya, which the ruling Princes of Tipperah have ever since borne.

² Elliott and Dowson, *History of India as told by its own Historians*. III, pp. 112-122.

is that Mahmūd's son, Kaikāūs, by using on his coins (as well as in one of the mosque inscriptions of 697 A.H. noted below) the title Al Sultān ibn Sultān ibn Sultān implicitly claims independent rule for his father. Ibn Batūtah states¹ that Nāṣiruddīn died in Bengal "some years after" his visit to his son Mu'izzuddīn in 686 or 687. We may therefore reasonably assume the minting of coins by Kaikāūs in 690 shows that the death of Nāṣiruddīn occurred either in the same or the preceding year.

Ruknuddīn Kaikāūs (690-701 A.H.).

The first coins known to have been struck by a member of the Balban line of Kings in Bengal appear with the accession of Ruknuddīn Kaikāūs, possibly in 690 A.H. This date is to be found on Bengal coin No. 8 of the Indian Museum Cabinet, the marginal inscription of which has been completely misread. The inscription (*vide* Pl. X, fig. 1) runs as follows:—

صرب عن الفضة [بعضوت] لکھنوتی من [في] خراج بڈگ سنہ تسعين وستمایہ

"This silver (coin was) struck at [Hāzrat] Lakhnautī from (?) the land-tax of Banga in the year 690."² Besides the unique date, the coin is valuable for the first mention on a Muslim inscription of BANGA as the name of the whole or part of Bengal. It may also indicate the final incorporation under Muslim rule of the territory in Eastern Bengal held by Hindu rulers, one of whom, Danuj Rai of Sunargaon, is mentioned as having assisted Balban a few years previously against Tughril by agreeing to prevent the latter escaping by water.³

Historians omit all mention of Kaikāūs, but from the titles he uses on his coins as well as the mention of Mahmūd on one inscription as his father (*vide infra*), it is certain that he

¹ Defrémery and Sanguinetti's translation, III, p. 179.

² Other examples of the phrase *min kharāj* (and some place name) on coin inscriptions may be seen in *I.M.C.* Vol II, Part I, No. 39 (an undated Altaush—607-633 A.H.; Qanauj and Mint Bilādu-l-Hind); and *I.M.C.* Vol. II, Part II, No. 6 (Mughīn-d-dīn Yuzbak of Bengal 653 A.H.; Nūdia and Gar (?) . . ; Mint Lakhnauti). It does not follow, as Mr. R. K. Banerji assumed on p. 288 of *J.A.S.B.* for 1913, that such a legend necessarily implies that the coins were struck to commemorate the conquest of the place mentioned (*cf.*, e.g., the date on this coin of Ruknuddīn, and that of Jalāluddīn (709) mentioned later). It is impossible also to agree with his reading of Bardan as the name following Gar in Yuzbak's coin (*vide* reproduction in Pl. I of same Vol. of *I.M.C.*).

³ Elliott and Dowson, *op. cit.*, III, p. 116. The Sirkār of Sunār-gānw in Akbar's time included Bikrampur and much land to the south (*vide* *Āin-i-Akbarī*, Blochmann's trans., Bk. III, pp. 138 and 139); and as Akbar's Sirkārs in all probability represent older administrative divisions, the chief seat of the Rai may have been Bikrampur. If so, he was very probably a descendant of the Sen Kings. Minhāj records that Banga, up to the date he brought his history—the *Tabuqāt-i-Nāsirī*—to a close (658 A.H.) was still under the descendants of Rai Lakṣmāniah (Lakṣmān Sen), *vide* Raverty's trans. p. 558.

was a son of Nāṣiruddīn. Coins of Ruknuddīn struck at Lakhnauti in 69[3?], 697, 698 and 69[9?], which were unearthed in 1910 at Purinda, Dacca District, are preserved in the Shillong Cabinet¹; and the Indian Museum Cabinet also includes coins of 691 and 697 from the same mint. The only two mosque inscriptions that bear the name of Kaikāūs are both dated 697 A.H. In the one at Gangarāmpur, Dinājpur (the old Hindu stronghold of Dev-Kot²) he is described as Kaikāūs Shāh, son of Maḥmūd, son of the Sultān (i.e. Balban). In that from Khagol³ the titles run "Shah, the Sultan, son of a Sultan, son of a Sultan."

Shamsuddīn Firūz (701-722 A.H.).

Ruknuddīn Kaikāūs was succeeded—probably in 701—by his brother Shamsuddīn Firūz. The latter's relationship to Nāṣiruddīn is given by Ibn Batūṭah,⁴ but in contrast to the more elaborate title adopted by Ruknuddīn, Shamsuddīn contented himself on his coins with the simple *Al Sultān*. His son Hātim Khān, Governor of Bihār in 709 and 715, also uses this title in referring to his father on inscriptions. The Shillong Cabinet include Lakhnauti coins of 701,⁵ 702 (Purinda find) 703 (from Enāyetpur, Mymensingh), 704, 706. [70]7, [70]9, 710, 71[1?], 712, 713, 714, 715, and also 720 (Purinda). Sunārgānw coins of 705 and 710, also occurred in the Purinda find, and a new mint *Banga*, is found on a coin in the Shillong cabinet from Rupaibārī in Nowgong (Assam).⁶ Only the mint figure [- -]5 is legible on this coin, but as the position of the unit seems to leave no space for a decimal the date is almost certainly 705.

The period was one of active expansion of Musalman dominion in Bengal and the adjacent countries. The clearest picture of this is seen in the conquest of the previously independent territory of Satgānw by the Turk, Khān Muḥammad, Zafar Khān Ghāzī, as described in 1847 by Mr. Money⁷ from the 'Khurseenamah' of Zafar Khān's descendants at Triveni near Hughli. Zafar Khan, accompanied by his sister's son Shāh Ṣūfī, or Ṣafī, (who appears to have been also the nephew

¹ The reading 7[- -] on S.C. 1/5 is so extremely doubtful that I have omitted to mention it. The coins of 697 and 698 are the latest certain dates up to now known. Thomas, (*op. cit.* p. 46) only records coins of 691-695.

² Blochmann, *J.A.S.B.*, 1872, p. 103.

³ *Idem*, *J.A.S.B.* 1873, pp. 247-8. This place is near Lakhiserai in Bihar. (*Idem*, *J.A.S.B.*, 1874, p. 288).

⁴ *Op. cit.* III, p. 210.

⁵ *Vide* Pl. X, fig. 2.

⁶ *Vide* Pl. X, figs. 3 and 4.

⁷ D. Money, *J.A.S.B.*, 1847, p. 395; (*vide* also Blochmann's account of the Triveni inscriptions in the *J.A.S.B.* for 1870).

of Firūz Shāh) came to Bengal from Manrgaun in Birbhum, for the purpose of converting infidels to the Muhammadan faith. The ostensible reason is given by the following local story collected by Mr. Money. A Mahomedan subject of a Hindu Raja on a certain festival in honour of his son used cow's flesh. The Raja slew the son. The father resorted to the Court of Delhi (*sic!*) and told his tale to Feruze Shah, who immediately sent an army to Bengal against the Raja, commanded by Zafir Khan, and his nephew Soofee Khan. The Raja's name was Bhoodev Nripati (i. e. King) with whom a battle was fought at a place called Mahanad, near Satgram, about 8 miles west of Triveni, where Zafir Khan's army was victorious.

The story is obviously a muddled one, for the first invasion of Satgānw must have been in the time of Kaikāus, as Zafar Khān erected a mosque at Triveni in 698 A.H.; but apart from the fact that there was no Dehli Sultān of the name of Firūz at the time¹, Zafar Khān's subsequent subordination to Shamsuddīn Firūz Shāh of Bengal is shown by the appearance of this Sultān's name on the memorial tablet on the Madrasah erected by Zafar Khān at Triveni in 713. The more reliable Khurseenāmah goes on to say that having made a proselyte of Rājā Man Nripati, Zafar Khān was killed in a battle fought with Rājā Bhoodev at Hughli. His head was left on the field and his body buried at Triveni. His death, according to Mr. Money, occurred in the same year 713 as Zafar Khān erected the Madrasah already referred to. The Khurseenāmah further states that 'Ugwhān Khān, son of the aforesaid Shah Zafir Khan Ghazee, having marched against the Raja of Hugli in Sircar Satgram, conquered him, converted the infidels to Mahomedanism and married his daughter. After some time Ugwhan Khan also died at Triveni.'

Thus Satgānw passed into Musalman hands; and in Barani's account² of Muhammad ibn Tughlaq's relations with Bengal for the few years following 725 we find it mentioned as one of the three recognized divisions of Bengal. The other two Sirkārs were Lakhnauti, the original principality acquired by Bakhtiyār Khilji in 1198 A.D., and Sunārgānw, which, as we see from the Shillong coin of 705, was definitely included in Muslim Bengal by that date, and may, from the occurrence of the name BANGA on Ruknuddīn's coin of 690, have been finally conquered soon after Balban's invasion of Eastern Bengal in 682.

Now it is curious that precisely the same story for the invasion of a Hindu kingdom by Musalmans occurs in local

¹ Alāuddīn Muhammad Shāh was on the throne of Delhi from 695-715.

² Elliot. III. pp. 236 and 239.

tradition regarding the first conquest of Sylhet. This has previously been believed to have taken place in 786 A.H., though the name Shamsuddin as the reigning King of Bengal at the time and the fact that one of the chief participators (Shāh Jalāl) was a disciple of Nizāmuddin Auliya, who died in 725 A.H., might have suggested to Blochmann that the date was erroneous. That the conquest of Sylhet took place in the time of Shamsuddin Firūz Shāh is practically certain from an inscription from Sylhet (now in the Dacca Museum) which was first mentioned by me in a paper contributed to the *Dacca Review* in August 1913. Though not a contemporaneous record it gives almost certainly (both from the date as well as from internal evidence) a truer version of the first invasion of Sylhet than local tradition has hitherto supplied us. The inscription (Pl. IX) runs as follows:—

بعظمت شیعہ المشائخ [؟] مخدوم شیخ جلال مجتهد بن محمد
 اول فتح اسلام شہر عرصہ | سرپہت بدست سکندر
 خان غازی | در عہد سلطان فیروز شاہ | داوی
 سہہ ثلث و سبعہایہ این | عمارت رکھنخان کہ فنیہ
 کاندہ | ہشت کامہاریان وزیر و لشکر بودہ | شہرہا
 وقت فتح کامرو و کامتا | و جاز نکر و اریشا لشکری کردہ
 باشند جابجا | بدنبال بادشاہ سہہ ثمان و عشر و تسعہایہ -

"In honour of the greatness of the respected Shaikhul-Mushāikh (?) Shaikh Jalāl, the hermit, son of Muḥammad.

"The first conquest by Islām of the town 'Arsah Srihat was by the hand of Sikandar Khān Ghāzi in the time of Sultān Firūz Shāh Deh̄lavi in the year 703.

"This building (has been erected by) Rukn Khān, the conqueror of Hasht Gambhāriyān, who being Wazir and General for many months at the time of the conquest of Kāmrū, Kāmatā, Jāznagar and Urishā, served in the army in several places in the train of the King. (Written) in the year 918."

The excellent state of preservation of this inscription is due to the fact that (like the inscription of Shamsuddin Firuz Shāh's son, Hātim Khān, of 715), the back was subsequently used for another inscription (that of a certain Masnad-i-'Alī Khān in 996.) The trustworthiness of the statement made in the first portion of the inscription is shown by the following considerations:—

(1) Sultān Firūz Shāh was actually on the throne of Bengal in 703 A.H.

(2) As the grandson of Ghiyāṣuddin Balban he is rightly called Dehlawi (cf. also the connexion of Firūz Shāh with Dehlī in the Satgānw tradition).

(3) The date is in agreement with a local tradition that when Sikandar Ghāzī at first failed to defeat Rājā Gour Govinda, Saiyid Nāsiruddīn Sipahsālar, accompanied by Shāh Jalāl and other warrior saints, came to assist him and that the former was a General of Firūz Shāh Dehlawī.

(4) In 703 the Sultān of Dehlī was 'Alāuddīn Khiljī, which agrees with another tradition mentioned in Nāsiruddīn Hydar's History of Sylhet (the *Suhail-i-Yemen*) that he was the Dehlī Emperor when Sylhet was conquered.

A village of the name Sekandarnagar in south-eastern Mymensingh may possibly owe its name to Sekandar Ghāzī, but he is apparently buried at Bishgānw (*alias* Ghāzīpūr) in the extreme south-east of the Habiganj Sub-Division of Sylhet (in the Tipperah Hills), where his shrine is venerated by Muhammadans and Hindus alike. Before coming to Sylhet he is said to have warred successfully against a Hindu Rājā of the Sunderbans called Matuk, and it is curious that the present Magistrate of Mymensingh (Mr. H. C. French, I.C.S.) possesses a coin of Shamsuddīn Firūz Shāh dated 710 (or 720) which was found in a village in the extreme south of the Satkhira Sub-Division of Khulna District.

The Ruknuddīn of the inscription was a well-known General of Sultān Husain Shāh of Bengal (899–925 A.H.), and his name occurs on two other inscriptions deciphered by Blochmann, who wrongly makes him an inhabitant of Sarhat in Birbhum, instead of a Sylhetī.¹ The historical bearing of the rest of the inscription will be discussed later in this paper when dealing with the chronology of the Husainī Kings of Bengal.

It will not be out of place here to make a few remarks on the probable attitude of the Khiljī Sultāns of Dohli, who were contemporary with Kaikāūs and Shamsuddīn Firūz, towards these Kings of Bengal, who, by their descent from Balban, must obviously have been regarded with jealous—if not anxious—eyes. The facts mentioned by Barani² that 'Alāuddīn was himself contemplating an invasion of Bengal just before he succeeded to the Dehlī throne by murdering his uncle in 695; and that again about 698 he thought of sending Zafar Khān (a minister whom he had begun to fear) against Lakhnautī, suggest that the presence of numerous 'saints' and 'ghāzīs' in Bengal at this time might even have been due to some definite policy on the part of the Dehlī sovereign. This idea is supported to some extent by Ferishta's remark that Shamsuddīn's son Bahādur Shāh was "an officer of the reign of 'Alāuddīn Khiljī"; by which it seems to be meant that he was encouraged by 'Alāuddīn in the successful attempt that will be soon referred to share the prerogatives of royalty

¹ *J.A.S.B.*, 1870, pp. 284 and 295; *idem*, 1872, p. 106.

² *Loc. cit.*, pp. 152 and 165.

with his father. The despatch by 'Alāuddīn's predecessor Jalāluddīn Firūz Shāh Khilji of boat-loads of undesirables into the Lower Country to the neighbourhood of Lakhnauti where they were "set free so as not to trouble the neighbourhood of Dehli any longer"¹ may also be noted in the same connexion. The easiest way for the Sultāns of Bengal to nullify such a wholesale deportation (nearly 1000 came in one lot) was to enrol these men in a "Foreign Legion" and utilise them in warring against the infidel on the frontiers of Bengal, and this is probably what Shamsuddīn and his predecessor actually did.

Having thus dealt with two of the expeditions of conquest that undoubtedly characterised Bengāl at this period, let us return to a consideration of other events of the reign of this King, whose dominions extended from the confines of Bihār in the West to the remotest corner of Sylhet in the East, and whose reputation in Bengal is shown by the fact that, after the Governors appointed by Muhammad ibn Tughlaq on the fall of the Balbanī dynasty had, in their turn, been swept away, we find the capital Lakhnauti appearing on the coinage under the name of Firūzābād. As this survey will chiefly consist of a narration of the efforts of his sons to share the sovereignty of Bengal with their father, or, after Firūz Shāh's death (about 722 A.H.), either with a brother, or a Governor of the Dehli Sultān, a fresh section will be begun with a list of the sons of Firūz who are known to have struck coins.

<i>Jalāluddīn Maḥmūd</i>	..	(709- or 707- A.H.)
<i>Ghiyāsuddīn Bahādur</i>	..	(c. 710-728)
<i>Shihābuddīn Bughrā</i>	..	(717 and 718)
<i>Nāṣiruddīn Ibrāhīm</i>	..	(c. 724-726)

By 709 A.H., when we find Hātim Khān, a son of Firūz Shāh, installed as Viceroy to his father in Bihār², Shamsuddīn must have completely consolidated his power, and in the same year (or, possibly, two years earlier) we find another son Jalāluddīn Maḥmūd, permitted by his father to strike coins at Lakhnauti.³ Except for a mention of his unique coin in the Shillong Supplementary Catalogue (p. 106), this son has hitherto been unknown to history, and the margin of the coin is incorrectly given in the Catalogue. From the reproduction of the coin in Pl. X. fig. 5, it will be seen that although the marginal legend is not very distinct, it is probably the same

¹ *Idem*, p. 141.

² Blochmann, *op. cit.*, 1873, p. 249.

³ The name Maḥmūd furnishes a certain amount of evidence that he was the great grandson of Balban, as the name of Shamsuddīn's father, Bughrā Khān, was also Maḥmūd. For this Muhammadan custom of naming a child after his grandfather *vide* Blochmann, *op. cit.*, 1873, p. 288.

as that already noted for I.M.C. No. 8, except that the date is either 709 or 707. The translation of the margin runs:

"This silver (coin was) struck at *Haṣṣat Lakhnautī* from the land-tax of Banga in the year 709 (or 707)." This third mention of BANGA on a coin legend furnishes additional evidence to that supplied by Firūz's coins of Sunārgānw struck in 705 and 710 of the complete subjugation of Eastern Bengal either during, or before, the reign of Firūz Shāh.

Jalāluddīn's success in inducing his father to share the kingly prerogative of striking coins with a son must have roused jealousy amongst Maḥmūd's other brothers, and it is not surprising to find in 710 the appearance of the coinage of another son, Ghiyāuddīn Bahādur (nicknamed *Būrah*, the Black one¹) also appearing simultaneously with that of Firūz Shāh. The absence of any other coin of Jalāluddīn and the continuance after 710 of Lakhnauti coins of Bahādur suggests the possibility of Bahādur having succeeded in arranging for the assassination of his presumptuous brother or, at least, of achieving his permanent exile from Lakhnauti.

The Shillong Cabinet includes coins struck in Bahādur's name of 710, 720, and 72[2?], from Enāyetpur, Mymensingh; 714, 717, 720 and 721 from the Purinda find; 721 from Rupaibārī, Assam; and 721, 722 (or 723: S. C. $\frac{2}{10}$), 72 [2?] (S. C. $\frac{2}{10} - \frac{2}{11}$) and 723 (S. C. $\frac{2}{10}$) found at Kastabīr Mahallah, Sylhet, in 1913. All the above, where mints can be read, are from Lakhnauti; except in the case of the 717 coin from Purinda (S. C. $\frac{3}{10}$) which was found on re-examination to have been struck at Sunārgānw. My own cabinet includes the following coins with date and mint clearly legible in the margins: 3 of 720, 4 of 721, 1 of 722, and 3 of 723. These all were struck at Lakhnauti and were bought in the vicinity of Enāyetpur. The only other Ghiyāuddīn coin with fairly complete margin in my cabinet that was obtained from this part of Mymensingh bears the first portion of the mint name Sunārgānw and was struck in 72[-].

There remains to be considered the extremely interesting Shillong Cabinet coin $\frac{1}{10}$ from Enāyetpur. (*vide* Pl. X, fig. 7) which was struck at *Qasbah Ghiyaspūr*. This mint has previously been recorded by Thomas from one of Col. Guthrie's coins of the Kuch Bihār find² but, long before the Shillong

¹ Ibn Baṭūṭah, *loc. cit.*, p. 210; Blochmann, *J.A.S.B.*, 1874, p. 289, notes that this is evidently the Hindustani *brāh* "brownish."

Mr. R. Burn, C.S., informs me, however, that in the United Provinces *brāh* is used to refer to a man who is markedly fairer than the ordinary Indian, with brown moustache, blue eyes, and a wheat-coloured complexion.

² Thomas, *Chronicles of the Pathan Kings*, pp. 153 and 201; and Pl. VI, fig. 5.

coin supplied certain evidence on the subject, I was extremely doubtful as to the accuracy of Thomas' reading 730 for the date. The margin after the mint name on Col. Guthrie's specimen was mutilated, but, even if one conceded that the following word was *سنة*, I could not agree with Thomas' reading of *ثلاثين* for the Arabic numeral 30, which, so far as I know, is invariably written *ثلاثين* on Bengal coins. From the Shillong coin which is apparently an exact duplicate of Col. Guthrie's coin, it is evident that the date of both coins is 722, and, indeed the unit *سنة اثني*, in the year two, is clearly legible at the bottom of Thomas' reproduction. The reading of the marginal inscription of S.C. 10 in the Shillong Supplementary Catalogue, besides being probably at fault in reading *احدى* (one) for *اثني*, is also wrong in regard to the words that follow the mint name, as there is only one month of *Safar* in the Arabic calendar. I cannot however at present offer any certain suggestion for a correct reading, though it seems possible that the word immediately preceding *سنة* is *سفر* (*Safar*).

Enāyetpur lies on raised land about 15 miles south-west of the present town of Mymensingh, on the upper reaches of the Banar River that drains the centre of the Madhupur Jungle into the Lakhyā, and as a *mauza* on the river bank near Enāyetpur is still known as *Ghiyāspūr*, it seems probable that this was the site of the mint that *Ghiyāsuḍḍīn* named after himself. It is not far from the *Bāratīrtha*, a tank said to have been excavated by a Hindu King called Bhagadatta Rājā. After the tank had been dug, samples of water from 12 Hindu places of pilgrimage were poured into the tank and thus the Rājā's mother was enabled to acquire virtue by bathing therein, without actually visiting the *tīrthasthānas* herself. A large pilgrimage to the *Bāratīrtha* still takes place annually in March.¹

Thomas suggests that *Ghiyāspūr* is near Maldah, but if the identification of the position of this mint on the Banar

¹ One local tradition in Mymensingh actually states that Bhagadatta Rājā lived at the time when the Muhammadans first began to conquer Eastern Bengal; and his battle with the Muhammadan King, whose name is not known, is said to have taken place near Bogra. The same story is told of him as is recorded of Rājā Ballal of Rāmpāl in Bikrampur. He took a pigeon with him when going into battle and told his Rānī that if the pigeon came home alone it would be a sign that he had been defeated. By chance, during the fight, when things were going well for the Hindus, the pigeon escaped. Bhagadatta instantly returned to his camp and mounting a swift horse galloped towards his capital: but on reaching home he found nothing but burning ashes, the Rānī, to prevent herself from falling into the hands of the Muhammadans, having set fire to the palace, and thrown herself, with her entire family, into the flames. The Rājā, being disgusted with the world, turned into a *saṅgyāsī*, and was heard of no more.

River, Mymensingh, is correct, the fact probably furnishes one more indication of the active extension of Muhammadan rule in Bengal during the reign of Shamsuddin. In this case it resulted in the absorption either of the petty sovereignty of a Hindu Rājā (who may have fled from Bengal to the Madhupur jungle for fancied security from his Musalman foes), or of an outlying portion of the dominions of Kamatā or Prāg̃jyotishpūr (Assam).

Ghiyāsuddin was not allowed to share the sovereignty with his father without dispute, and it was the successful attempt of another son of Shamsuddin, viz.: Shihābuddin Bughrāh Shāh, in 717-718 to obtain the same right of coinage as his brother that ultimately led to the affairs of Bengal again becoming of active interest to the sovereigns of Dehli. The few coins of Shihābuddin previously recorded are all dated 718, but the unit decimal on a coin in my possession, which was purchased at the Calcutta mint in 1906 from among the *rejecta* of a find made at Murshidabad the previous year, seems clearly to be -17, سبع عشر.¹ As there is also a coin of Ghiyāsuddin of 717 in the Shillong Cabinet and no coins struck by Ghiyāsuddin in 718 or 719 are known, Shihābuddin seems to have successfully ousted his brother from his position as joint ruler with Shamsuddin during the year 717, and, possibly, maintained himself in power at Lakhnauti for two years longer. In 720, however, Ghiyāsuddin's coins begin again and are found in comparatively large numbers for each of the succeeding years until 723: in which year Ghiyāsuddin's coinage as an independent King comes to an end.²

We only possess two fairly satisfactory contemporary authorities for this period, Ibn Batūṭah, the Tangiers doctor, who arrived in India at the beginning of the Hijra year 734 (September, 1333), but who dictated an account of his travels in 756, several years after his first return to Morocco: and Zīā-ud-dīn Baranī, who completed in 757 A.H. the task he had set himself of continuing the celebrated *Tabaqāt-i-Nāsirī* from the date (658) its author Minhājuddīn had brought his work to an end. Both Ibn Batūṭah and Baranī need to be used with caution: but as they happen to throw considerable light on the very obscure history of Bengal from 720-750 A.H., I will now quote the passages in which these writers refer to the Balbanī Kings and the events in Bengal between the time of the disappearance of the last of these Kings, and the establishment of another independent line of Bengali Kings with Fakhruddīn and Ilyās Shāh.

¹ Vide Pl. X, fig. 6.

² The British Museum Catalogue gives one coin of 728, but on inspection the unit word was found to be undoubtedly ثنى, so that the real date of the coin is 722.

After narrating the attempted rebellion in the Deccan of of Ulugh Khān Muhammad Fakhruddīn Jūnā against his father Ghiyāsuddīn Tughlaq of Dehli in 721-22, and the execution by impaling at Tughlaqābād of two of the conspirators, Ibn Batūtah goes on to say :¹

"The other Amīrs fled to Sultān Shamsu-d-dīn, son of Sultān Nāsiro-d-dīn, son of Sultān Ghiyāsu-d-dīn Balban, and established themselves at his Court (at Lakhnauti).

"The fugitive Amīrs dwelt with Sultān Shamsu-d-dīn. Soon afterwards he died, leaving his throne to his son Shihābu-d-dīn. This prince succeeded his father, but his younger brother, Ghiyāsu-d-dīn Bahādur Būrah (this last word signifies in the Indian language *black*;) overpowered him, seized upon the kingdom, and killed his brother Katlu Khān and most of his other brothers. Two of them, Sultān Shihābu-d-dīn and Nāsiro-d-dīn, fled to Tughlaq, who marched forth with them to fight with the fratricide. He left his son Muhammad in his kingdom as Viceroy, and advanced in haste to the country of Lakhnauti. He subdued it, made the Sultan Ghiyāsu-d-dīn prisoner, and set off on the march to his capital carrying his prisoner with him."

Barani's account of the same incident runs as follows² :—

"At that time also there came certain of the chief men of Lakhnauti, and stood in the presence of the King, and told him of the tyranny and exactions of the governors of Lakhnauti, and informed him of their distress and of their sufferings, and of the complaints of all Musalmans, because of the injustice of those Governors. So Sultān Ghiyāsuddīn resolved within himself that he would march to Lakhnauti, and he sent messengers to Sultān Muhammad, and made him come from Arankal, and appointed him Regent in his absence, and entrusted to him the affairs of the government; and himself departed with an army to Lakhnauti and crossing deep rivers, and quicksands, and swamps he hurried on his way to Lakhnauti."

"When the shadow of Tughlaq Shāh fell upon Tirhut Sultān Nāsiroddīn, Governor of Lakhnauti, came with submission and obeisance to the Court and humbly offered allegiance: so that before the sword of Tughlaq Shāh was drawn, all the chiefs and the nobles³ of that country hastened to do him service, and to offer him their obedience. Then Tatar Khān, who was the adopted son of Sultān Tughlaq Shāh, and was Governor of Zafarābād, was sent with an army and brought all that country to submission; and Sultān Bahādur Shāh,

¹ Elliot and Dowson, *op. cit.*, III, p. 609. The spelling Tughlaq adopted in the *I.M.C.* has been followed in this paper though Tughluq is probably more correct.

² Mr. Auckland Colvin's translation (*J.A.S.B.*, 1871, pp. 244 and 245) is quoted as it is somewhat fuller than Elliot and Dowson.

³ *Rais* and *Ranas*.

Governor of Sunārgānw, who was rebellious, he brought with a halter round his neck into the presence of the King; and all the elephants that were in those parts were gathered together into the King's elephant-stable, and there was collected to the army of Islām much treasure because of that expedition. Then Sultān Ghiyāsuddīn Tughlaq Shāh made Sultān Nāsiruddīn, Governor of Lakhnauti, and entrusted to him the kingly power, because he had hastened to do obeisance, and sent him to his government. But of Satgānw and Sunārgānw he took possession. And Bahādur Shāh he sent with a halter round his neck to Dehli, and Sultān Tughlaq Shāh returned in triumph and with victory towards Tughlaqābād. In Delhi also the news of the victory in Bengal was read in all the pulpits, and canopies were erected, and the drums were beaten and there was much rejoicing."

On comparing these two accounts with the numismatic evidence at our disposal various facts emerge. In the first place it is clear that Shamsuddīn Firūz Shāh could not have died before 722, so that the doubts cast by Blochmann on Thomas' reading, 722, on a coin of Shamsuddīn, and his limitation of the latter's reign to 717 or 718,¹ cannot be upheld. Secondly, the existence of the series of Ghiyāsuddīn Bahādur's coins from 720-723, and the absence of coins of Shihābuddīn after 718 tend to show that the eviction of Shihābuddīn from Lakhnauti by his brother took place in 719 or 720 (i.e. before their father's death) and that it was probably only the usual general massacre of brothers that was attempted by Ghiyāsuddīn on the death of Shamsuddīn in 722 or 723 that led to the appeal of Shihābuddīn and a previously unrecorded brother Nāsiruddīn to the Sultān of Dehli in the latter year. Lastly, while Tatar Khān, the Sultān's adopted son, was apparently given a general commission to bring Bengal completely under the suzerainty of Dehli, Nāsiruddīn was appointed Sultān of Lakhnauti in succession to Ghiyāsuddīn, the claims of Shihābuddīn, if he or any other son of Shamsuddīn were still alive, being passed over, as "by his humility and submission Nāsiruddīn had established a preferential claim to the office."²

The installation of Nāsiruddīn as Sultān of Lakhnauti is confirmed by the issue of the British Museum coin noted by Rodgers (*J.A.S.B.*, 1894. p. 67. and No. 19, Pl. V), modelled on those of Ghiyāsuddīn Bahādur and struck in the joint names of Ghiyāsuddīn Tughlaq and Nāsiruddīn. The obverse runs :—

¹ *J.A.S.B.*, 1874, p. 289.

² So Blochmann (*idem*) paraphrases Baranī's words *kīh dar itā'at o bandagī sabqat namūdah būd*.

السلطان الاعظم
غياث الدنيا والدين
ابو المظفر تغلق شاه
السلطان

The first two lines are identical with the first two lines of the coins of Bahādur, and the whole fabric of the coin shows that it was almost certainly issued from Lakhnauti and that it was the work of Bahādur's own mintmaster. The reverse, which supplies us with the actual name of Nāṣiruddīn, viz.: Ibrāhīm, runs:—

السلطان الاعظم
ناصر الدنيا والدين
ابو المظفر ابراهيم شاه
السلطان بن سلطان

The change of Bahadur's title *Al-Sultān bin Sultān* on the obverse to the simpler *Al-Sultān* of Tughlaq is noteworthy, and although in the first line of the reverse Ibrāhīm acknowledges by adopting the humbler *Al-Mu'azzam* (instead of *Al-'Azam*) that he is subordinate to Tughlaq, the concession in the last line of Ibrāhīm's higher claim to regal paternity shows that Tughlaq fully recognised that he was dealing with no ordinary upstart, but a King of more aristocratic descent than himself. As the coin practically consists of two obverses, there is no margin from which the date might have been obtained, but from the fact that Ghiyāṣuddīn Tughlaq's death took place in 725 A. H. the coin must have been struck either in this, or the previous year.¹

On the very day that he returned from Bengal to Tughlaqābād (Dehli) Ghiyāṣuddīn Tughlaq died by the fall of a temporary pavilion in which he had partaken of a feast of welcome, and was succeeded by his son Muḥammad ibn Tughlaq. Almost the first act of Muḥammad was to liberate Bahādur and send him back to Bengal to share that kingdom jointly with (apparently) his brother Nāṣiruddīn Ibrāhīm. Our only contemporary authority for the re-instatement of Bahādur (except the evidence of coins that will be subsequently mentioned) is Ibn Baṭūṭah, who gives the following particulars of Bahādur and his subsequent fate.²

¹ A reproduction of this coin may be seen in No. 3, Pl. XVI, published with Numismatic Supplement No. XVI of *J.A.S.B.* for 1911. Mr J. Allen states that it came from the Sonpat hoard, Punjab.

² *Op. cit.* (Arabic text), pp. 316 and 317.

*Account of the beginning of Muḥammad ibn Tughlaq's
reign and his clemency to Bahādur Būrah.*

"When the Sultān was invested with power on the death of his father, and the people had taken the oath of allegiance to him, he summoned Ghīyāṣuddīn Bahādur Būrah, whom Sultān Tughlaq had captured. He pardoned him, and removed his fetters, and gave him many gifts of money, horses, and elephants, and sent him back to his kingdom (Bengal). He sent with him his brother's son, Ibrāhīm Khān,¹ and arranged with Bahādur that they should share that kingdom equally, and that their name should appear together on the coinage, and that the *Khutba* should be in their common name, and also that Ghīyāṣuddīn should send his son, Muḥammad, known as Barbat, as a hostage with the Sultān (of India).

"Then Ghīyāṣuddīn returned to his kingdom, and fulfilled what he had agreed to do, save that he did not send his son, as he pretended that the latter was unwilling (to go). He was also impolite in his correspondence. On this, the Sultān sent his armies to (the assistance of) his brother's son Ibrāhīm Khān, under the command of Duljī At-Tatarī. They fought against Ghīyāṣuddīn and slew him, and stripped off his skin. The skin was then filled with straw, and sent round the Provinces."

Ibn Batūṭah's account is sufficiently clear except that it makes out Ibrāhīm to be a brother's son of Muḥammad ibn Tughlaq instead of Ghīyāṣuddīn's brother: but this may possibly be due to the mistaken insertion by a copyist of *ابن* in the manuscript before *الخديو*. It also implies that Nāṣiruddīn Ibrāhīm was alive at the time of his brother's second capture, which, as will be seen later, is incorrect. Ferishta, who completed his History of the Muhammadan Dynasties of India in 1609 A.D., adds two additional pieces of useful information, quoted probably from some other early historian of Bengal whose work has not reached us. The first is that, simultaneously with Bahādur's reinstatement by Muḥammad ibn Tughlaq, Tatar Khān (whom we have already met as the chief agent in Ghīyāṣuddīn Tughlaq's conquest of Bengal) was appointed to the Government of Bengal with the title of Bahrām Khān and received 100 elephants, a crore of gold *tankas* and 2000 horses.²

¹ Blochmann's suggestion (*J.A.S.B.*, 1874, p. 290) that here and later, "his adopted brother Bahrām Khān" should be read is unnecessary in this place at all events, though possibly in the case of the second reference there has been confusion between Ibrāhīm and Bahrām.

² Bahrām Khān's headquarters was probably Sunārgānw where (according to Ferishta) he had acted as Governor, i.e. during the period of Bahādur's confinement at Dehlī. Thus, Baranī speaks later as if Fakhruddīn, the next independent King of Bengal, revolted against Muḥammad ibn Tughlaq at Sunārgānw, after Bahrām Khān's death, and

His position seems to have been that of Imperial High Commissioner in Bengal to keep a watchful eye on behalf of the Dehli Sultān over the proceedings of the now feudatory Balbanī Kings. The second is that Nāsiruddīn died apparently in the year following his confirmation in the sovereignty of Lakhnautī and that in his place Malik Bedār (ór Pindār) Khān Khiljī was made Governor of Lakhnautī and received the title of Qadar Khān.

We also gather from another late historian, Badāonī (c.1595 A.D.), that at some unspecified but early date in Muḥammad ibn Tughlaq's reign Satgānw was placed under a separate Governor called Malik 'Izzuddīn Yahyā 'Āzamu-l-Mulk. This agrees with Baranī's statement that Satgānw (with Sunārgānw) had been kept directly under the power of Ghiyāsuddīn Tughlaq: but as Badāonī mentions 'Izzuddīn after Pindār Khiljī, the formation of Satgānw into a separate Governorship might have been effected after the death of Nāsiruddīn.

No coins in the joint names of Ghiyāsuddīn Bahādur and Nāsiruddīn Ibrāhīm are known but Firishṭah's date of 726 for the latter's death is confirmed by coins struck in the name of Muḥammad himself at Shahr Lakhnautī in 727 A.H.¹ The coin cabinet of the British Museum contains, however, a hitherto unrecorded and possibly unique coin issued in the joint names of Muḥammad and Nāsiruddīn. From the annexed cut it will be seen that the inscriptions run as follows:—



Coll. Bleazby No.³ 2085. Ar. Wt. 166·9 grs. : S. 1·1 in.

made that town the headquarters for his successful attack on Muḥammad's other Governor, Qadar Khān, at Lakhnautī.

¹ Vide Pl. X, fig. 10. These coins (as well as those of Lakhnautī dated 733 A.H.—Vide Table on next page but one) differ from those of Satgānw and Sunārgānw (Nos. 2 (α) and 3) in reading محمّد for نصیر in the margin.

Obverse :

السلطان
عظم محمد شاه السلطان
طاهر بن سلطان

Reverse. As in the coin of Nāṣiruddīn, previously described, except that at the end of the first line المعظم occurs instead of the incorrect معظم.

Though the name of the suzerain is only given as Muḥammad, there can be no doubt that the monarch in question is Muḥammad ibn Tughlaq. The date of the coin is probably 726.

Only five coins (two gold and three silver) struck by Bahādur after his reinstatement in Eastern Bengal have been recorded¹ and these all bear the date 728 and mint name Hazrat Sunārgānw. The inscription on these coins, as given by Thomas in the case of the silver coin, runs as follows:—

Obverse : السلطان المعظم غياث الدنيا والدين ابو مظفر
بهادر شاه السلطان ابن السلطان

Reverse (Area) : ضرب بامر الواثق بالله محمد بن تغلق شاه

(Margin) : هذالكه بعضرت مناركانو منه ثمان
وعشرين وسبعماية

The occurrence on the reverse of the sentence “struck by order of Him who trusts in God, Muḥammad bin Tughlaq Shāh” shows, in comparison with the legend on the coin of Nāṣiruddīn Ibrāhīm and Ghiyāṣuddīn Tughlaq previously referred to, the increased subordination that had been exacted from Bahādur by the Delhi Sultān.

For the approximate date of Bahādur's death we must turn to a consideration of the coins struck by Muḥammad ibn Tughlaq in Bengal as well as a rather complicated argument that can be gathered from the pages of Ibn Baṭūṭah.

The dates and mints of all the Bengal coins of Muḥammad that I have been able to trace are summarised in the following table:—

¹ Thomas, *Initial Coinage of Bengal*, I. p. 55; and *idem.*, II p. 38; *J.A.S.B.*, 1921, Num. Suppl., p. 153. There is also a sixth (silver) specimen of this coinage in the Indian Museum Cabinet.

Mint.	Type and Metal.	Date.	Reference and Provenance.
1 (a) Shahr Lakhnauti	<i>I.M.C.</i> , No. 321 (Dehli, 725): Silver	727(1); 728(2); 729 and 730(3); 733(4)	(1) <i>L.M.C.</i> , p. 48, No. 1; <i>B.M.</i> (Coll. Bleazby: 2 coins); and <i>H.E.S.</i> (Enā- yetpur). (2) <i>B. M.</i> (Coll. Bleazby: 2 coins). (3) Coll. H. R. Ne- vill (<i>J.A.S.B.</i> , Vol. XVII, 1921, p. 133). <i>B. M.</i> (Coll. Bleazby) has also a coin of 729. (4) Thomas, <i>I.C.B.</i> , I, p. 56 (Col. Gu- thrie's 5 coins).
	Do.: Gold	734(5)	(5) Coll. H. R. Ne- vill (<i>idem</i>). (1) <i>I.M.C.</i> , No. 382. (2) <i>Rodgers</i> , <i>J.A.S.B.</i> , 1883, p. 59.
1 (b) Iqlīm Lakhnauti.	<i>I.M.C.</i> , No. 375 (Dehli, 730): Forced currency.	731(1); 732(2)	(1) <i>I.M.C.</i> , No. 382. (2) <i>Rodgers</i> , <i>J.A.S.B.</i> , 1883, p. 59.
2 (a) Satgānw	As in 1(a): Silver	729, 730, and 733(1); 734(2)	(1) <i>I.M.C.</i> , Nos. 324 325 and 327. (2) <i>H.E.S.</i> (Enāyet- pur).
	Kalimah-type (without names of Companions): Gold.	734 and 735(3)	(3) <i>L.M.C.</i> , p. 47, Nos. 2 and 1.
2 (b) Arṣah Satgānw.	As in 1(b): Forced cur- rency.	730(1); 731(2)	(1) <i>I.M.C.</i> , No. 383. (2) <i>Rodgers</i> , <i>loc.</i> <i>cit.</i> , p. 60.
3 Shahr Sunār- gānw.	As in 1(a): Silver	733 and 734(1)	(1) <i>H.E.S.</i> (Enāyet- pur).

From this table it would appear that, apart from the Lakhnauti coins that began to be struck after the decease of Nāsiruddīn, there was no issue of Bengal coins in the sole name of Muḥammad ibn Tughlaq until 729. The sudden activity of a second mint in this year may, very reasonably, be connected with Ghiyāsuddīn having been defeated and slain at about this date.

Ibn Batūtah unfortunately supplies no facts from which any really definite confirmation of this date can be obtained, but the following may be noted in support of it. On his arrival in India in 734,¹ Ibn Batūtah saw at Multān suspended over the door of the palace of Kishlu Khān *alias* Malik

¹ *Op. cit.*, III, p. 93.

Bahrām 'Abiah, late Governor of Sind and Multān, the head of the deceased Governor.¹ Kishlu Khān's death had occurred as the result of Muḥammad ibn Tughlaq's anger when he heard that this Governor had buried the skins of Bahādur and of Bahāuddīn Gushtasp on their reaching his hands, when the two skins stuffed with straw, were being sent round the Provinces as a warning to other would-be rebels. Bahāuddīn was a nephew (sister's son) to Ghiyāsuddīn Tughlaq, and after the accession of Muhammad to the throne of Dehli, he refused to take the oath of allegiance and fled for refuge to the Rai of Kanbilah in the Deccan. He was finally caught, and on his being brought into Muḥammad's presence, the Sultān ordered him to be skinned alive and his flesh to be made into a curry which was sent to his wife and children to eat.² From the fact that his flight to Southern India occurred in consequence of his not being willing to take the oath of allegiance, his death must have taken place fairly soon after Muḥammad became Sultān of Dehli: but in view of the existence of coins of Bahādur dated 728, I cannot agree with Defrémery and Sanguinetti's acceptance (on the authority of Khondemir, the Persian author of a Universal History called *Habību-s-Siyār*, who died in 1534 A.D.) of the end of 727 as the date of Kishlu Khān's death.³ Badāoni, on the other hand, gives⁴ the date of Gushtasp's breaking out into rebellion as the end of 727, and Ranking notes that in this he is supported by the Bombay text of Ferishtah (though Briggs in his translation makes Ferishtah postpone it to the impossible date of 739). If therefore Badāoni and Ferishtah are correct, this would point to some time in 728 (or even 729, if one considers Ibn Batūṭah's account of Gushtasp's subsequent adventures in Southern India).⁵ In view of the fact already mentioned that both Gushtasp's skin and that of Bahādur arrived together at Multān, we may finally conclude that the death of Ghiyāsuddīn Bahādur took place either towards the close of 728 or early in 729.

Thus ended, in abject ignominy, the line of Balbani kings of Bengal. The apparent cessation of Imperial coinage in Bengal in, or shortly after, 735 points to a sudden outbreak of internal trouble; and though, as we shall see in the next section of this paper, historians record that Muḥammad's Governors continued in power for some years longer, they were ultimately replaced, after a period of anarchy, by independent Kings, and

¹ *Idem*, p. 324.

² *Idem*, III, p. 321.

³ *Op cit.*, III, Preface, p. XX.

⁴ Ranking's translation, I, p. 304.

⁵ Badāoni goes on to say "After that, Malik Bahrām Iba, the adopted brother of Sultān Tughlaq, raised a rebellion in Multān," which Muhammad ibn Tughlaq had to suppress in person. All this agrees perfectly with Ibn Batūṭah's account of the rising of Kishlu Khān.

Bengal again ceased to acknowledge the suzerainty of the Sultāns of Dehli.

Received February 25th, 1921.

APPENDIX A.

GENEALOGICAL TABLE OF THE KINGS OF BENGAL, DEALT WITH IN PART I.

Balban, Sultān of Dehli.

↓
Nāsiruddīn Mahmūd, of Bengal.
c. 682-690 A.H.

Ruknuddīn Kaikāūs 690-701.		Shamsuddīn Firūz 701-722.	
Jalāluddīn Mahmūd 709 (or 707).	Ghiyāsuddīn Bahādur (struck coins at intervals from 710 to 728, those in 728 in joint name of the suzerain, Muhammad ibn Tughlaq, Sultān of Dehli).	Shihābuddīn Bughrāh 717 and 718.	[Katlu Khān Nāsiruddīn and other brothers, slain by (Ghiyāsuddīn). Ibrāhīm 724-728 (under su- zerainty of Dehli Sultāns).

APPENDIX B.

BENGAL MINTS OF KINGS DEALT WITH IN PART I.

Kings.	Mints.	Date on Coins. (Silver unless otherwise stated.)
[Nāsiruddīn Mahmūd .. Ruknuddīn Kaikāūs ..]	No coinage .. Lakhnautī .. (" from the <i>Kharāj</i> of Banga ") Lakhnautī ..	known.] 690. 693, 697, 698 and 699 (?). (Thomas 691 and 693-5)
Shamsuddīn Firūz ..	Lakhnautī .. [Lakhnautī ?] ..	701. 702. 703. 704. 706. [70]7, [70]9, 710, 71[1?]. 712, 713, 714, 715 and 720. (Thomas: 702, 715, 720 and 722). A (I.M.C., No. 9: un- dated).

Kings.	Mints.	Date on Coins. (Silver unless otherwise stated.)
Shamsuddīn Firūz .. (<i>Contd.</i>)	Sunārgānw ..	705 and 710.
Jalāluddīn Maḥmūd ..	Banga ..	[70]5.
	Lakhnautī ..	709 (or 707).
	(“from the <i>Kharāj</i> of Banga”).	
Ghiyāsuddīn Bahādur ..	Lakhnautī ..	710, 714, 720, 721, 722 and 723 (Thomas also gives coins of 711 and 712).
	Sunārgānw ..	717.
	Qasbah Ghiyāspur.	722.
Ditto ..	Sunārgānw ..	728 (<i>R</i> and <i>N</i>).
(under suzerainty of Muhammad ibn Tugh- laq of Dehli).		
Shihābuddīn Bughrāh ..	Lakhnautī ..	717 and 718.
Nāsiruddīn Ibrāhīm—		
1. Under suzerainty of Ghiyāsuddīn Tugh- laq of Dehli.	{ [Probably Lakh- nautī].	Undated [724 or 725].
2. Under suzerainty of Muhammad ibn Tughlaq.		Undated [725 or 726].
Muhammad ibn Tughlaq, Sultān of Dehli.	Shahr Lakhnautī ..	727, 728, 729, 730 and 733. 734 (<i>A</i>).
	Iqlīm Lakhnautī ..	731 and 732.
	Satgānw ..	729, 730, 733 and 734. 734 and 735 (<i>A</i> Kalimah type).
	Arṣah Satgānw ..	730 and 731.
	Shahr Sunārgānw ..	733 and 734.

APPENDIX C.

PLATE X.

Muslim Coins of Bengal, 690-727 A.H.

(Reverse in each case, except No. 10.)

1. RUKNU-D-DIN KAIKĀUS I.M.C., No. 8; Wt. 168 grs.
S. 1·2 inch. (690 A.H. instead
of 693: Mint, “LAKHNAUTI
from the revenue of BANGA”).
In double square inscribed
in a circle:—
(1) *Al Imām.* *Margin.—Zarb haza alfizza*
(bihazrat) Lakhnauti min kharaj
Banga sanah tisa'inwasitt,

(2) *Al Musta'sim Amīr* *miat*.(3) *Al Mūminīn*.over first *mīm* of *Imām*.2. *SHAMSU-D-DIN-FIRŪZ* ..S.C. No. $\frac{1}{4}$; Wt. 168.5; S. 1.1: Provenance Purinda, Dacca District (701 A.H.: Mint, traces of LAKHNAUTI).

In double square inscribed in a circle.

Inscription as in No. 1, but period mark ~ over first *mīm* of *Imām*.*Margin*.—Traces of margin, as in No. 1, to Lakhnauti, followed by: *Sanah ahadi wasaba' miat*.3. *SHAMSU-D-DIN FIRŪZ* ..S.C. No. $\frac{1}{12}$; Wt. 168.9; S. 1.06: Provenance, Purinda ([70] 5 A.H.: Mint, SUNĀRGĀNW).

Inscription as in No. 2 ..

Margin... (ha)zrat Sunār-gānw sanah *kham*s..... (no space for any decimal, as marginal inscriptions in Firūz's coins begin at the top).4. *SHAMSU-D-DIN FIRŪZ* ..S.C. No. $\frac{1}{13}$; Wt. 168.5; S. 1.05: Provenance, Rupai-bāri, Nowgong, Assam ([70] 5 A.H.: Mint, BANGA).

Inscription as in No. 2 ..

Margin... (ha)zrat Banga sanah *kham*s..... (no space for any decimal).5. *JALĀLU-D-DIN MAHMŪD*S.C. No. $\frac{1}{32}$; Wt. 168.5; S. 1.1; Provenance, Purinda (707-or 9-A.H.: Mint, "LAKHNAUTI from the revenue of BANGA").Inscription as in No. 2, but with ₁ of *Amīr* missing and period mark ° over first *mīm* of *Imām*.*Margin*.—Zarb haza al-fizzah bihazrat Lakhnauti min *kharāj* Banga sanah saba' (or *lisa'*) wasaba' *miat* (there is a superfluous pellet—? isolated —after the unit).6. *SHIHĀBU-D-DIN BUQHRAH*

H.E.S.; Wt. 164.5; S. 1.04; Provenance, Murshidabad ([7] 17 A.H.: Mint, LAKHNAUTI).

Inscription as in No. 2, but with period mark ~ over *mīm* of *Imām* (cf. star in I.M.C. No. 13).*Margin*... Lakhnauti sanah saba' 'ashara...7. *GHIYĀSU-D-DIN BAHĀDUR*S.C. No. $\frac{2}{16}$; Wt. 167.9; S. 1.06; Provenance, Enāyet-

Inscription as in No. 2, but
Ghiyāṣuddin's usual mark
· over *mīm* of *Imām*.

8. GHIYĀṢU-D-DIN-BAHĀDUR

Inscription as in No. 2, but
with period mark ~ over
mīm of *Imām* (cf. mark
in previous *Sunārgānw*
coin. This is the only
known coin of Ghiyāṣud-
dīn with this mark instead
of the usual ·.).

9. GHIYĀṢU-D-DIN-BAHĀDUR

Inscription as in No. 7

10. MUHAMMAD IBN TUGHLAQ

(Obverse.)

Inscription :
In a circle the *Kalimah*.

pur (722 A.H.—not 721 as in
S.C. Supplement—Mint, GHIY-
ĀṢPŪR.

Margin.—(starting at mid-
dle right) *Zarb haza al-sikkah*
qasbah Ghiyāspūr [*fi shahr*
Safar (?)] *sanah ithnī 'ishrīn*
wasaba' miat.

S.C. No. $\frac{2}{1}$; Wt. 169·7;
S. 1·1; Provenance, Purinda
(717 A.H.: Mint, SUNĀRGĀNW).

Margin.—(starting at mid-
dle right) *Zarb haza* (traces
of *al-fizzah bihazrat*) *Sunār-*
gānw sanah saba' 'ashara wa-
saba' miat.

H.E.S.; Wt. 167·1; S. 1·08;
Provenance, Enāyetpur.

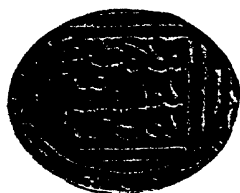
Margin.—clear, but evi-
dently the work of an engraver
completely ignorant of
Arabic who has endeavoured
unsuccessfully to copy the
usual margin: cf. *sanah* twice
repeated; and *bihazrat* *zarb*
(sic!)

H.E.S.; Wt. 169·7; S. ·96;
Provenance, Enāyetpur (727
A.H.: Mint, SHĀHR LAKH-
NAUTI).

Margin.—*Zarb haza al-*
sikkah Shahr Lakhnautī sanah
saba' 'ishrīn wa-saba' miat.



2



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8



NUMISMATIC NUMBER.

JOURNAL AND PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

New Series.

Vol. XXVI, 1930, No. 2.

SIR WILLIAM JONES



CALCUTTA:

PRINTED AT THE BAPTIST MISSION PRESS.

PUBLISHED BY THE ASIATIC SOCIETY OF BENGAL, 1, PARK STREET.

Issued September, 1932.

9 UNITS.

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Numismatic Supplement for 1930

[Journal and Proceedings of the Asiatic Society of Bengal]

Numismatic Supplement No. XLIII

[for 1930]

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NUMISMATIC SUPPLEMENT No. XLIII

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*Continued from "Journal and Proceedings," Vol. XXV,
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298. COINS OF DANUJMARDDANA DEVA AND MAHENDRA DEVA, TWO HINDU KINGS OF BENGAL.

The coins I propose to deal with in this article are those issued by two Hindu Kings of Bengal who call themselves Danujmarddana Deva and Mahendra Deva and whose coins—those at least with clear dates—cover only 2 years, *Saka* 1339 and *Saka* 1340 (=April 1416 to April 1418 A.D., which also correspond almost exactly to the *Hijra* years 819 and 820). The brief reigns of these Kings not only constitute a remarkable break in the otherwise continuous sequence of Muhammadan rulers from early in the 13th century till the beginning of the 19th century A.D., but the mint names found on their coins prove that the Hindus became temporarily dominant all over Bengal.

These coins undoubtedly originate from the family of one Raja Ganes, a Hindu, who generally appears under the name of Kāns in Muhammadan histories (*e.g.*, that of Ferishta, and the more modern *Riṣṭāz-us-Salātīn*). To give some idea of the exact period during which Ganes flourished and the coins of these two kings appeared, I will begin by some extracts from a précis of a 16th century Persian manuscript given in Major Francklin's Account of a visit to Gaur in 1810-11, as well as by Buchanan Hamilton in his 'Historical Description of Dinajpur' (probably written in 1808). The manuscript in question seems to have been discovered in the possession of some inhabitant of Pandua.

"Shamsuddīn [Ilyas] governed 12 years and was succeeded by his son Sekandar. The most celebrated person in the reign of Sekandar was a holy man named Mukhdum Ahl huk, whose son, Azem Khan, was commander of the troops. The saint having taken disgust at some part of the King's conduct retired to Sonargang, near Dhaka.-----The good man was however soon induced to return but the King's son, Ghiyāsuddīn, having also taken disgust, retired to the same place, and afterwards made war against his father, who after a reign of 32 years fell in battle at a place called Satra near Goalpara (probably Chattera river) which is situated between the Tanggon and Punabhoba, near a favourite country residence of the King.¹

¹ [Elsewhere (*Op. cit.*, p. 40), Sikandar Shah's residence is said to have been on the banks of the Tanggon, about 8 or 9 miles south of Bāmagola, now a thana headquarters in the district of Malda.]

Ghiyāsuddīn, on succeeding to the Government, put 17 brothers to death. The most holy man at his court was Mukhdūm Shah Nūr Kotub Alam, son of Alulhuk. Ghiyāsuddīn governed 16 years, and was succeeded by his son Syafuddīn, who governed 3 years, and was succeeded by his slave Saha-buddīn, who also governed 3 years.

Then Ganesh, a Hindu and Hakim of Dynwaj,——— seized the Government. Enraged at Shekh Bodor Islam and his son Fyez Islam, who refused to give him the compliment due to the rank he had assumed, he put them to death. The saint Kotub Shah, who was still alive, disgusted at this action, wrote to a Sultān Ibrahim—who, in compliance with the request, came from Rajmahal with an army, and encamped at Satra. The Raja of Dynwaj was then terrified and applied, in great penitence, to Kotub Shah, and obtained his forgiveness by making his son Godusen, a Muḥammadan. This convert assumed the Government under the name of Jalāluddīn, having been reconciled to the saint, and attacked Ibrahim Shah—and, having put him to death, seized on his Government. The old man Ganesh then confined his son and seized on the whole kingdom. After having been 4 years in confinement, Jalāluddīn recovered the Government, and compelled the Hindus to become Muḥammadans, but many of them fled to Kamrup. He governed 7 years and was succeeded by his son Ahmed Shah who reigned 3 years. He was destroyed by two of his nobles, Sadi Khan and Nasar Khan, the latter of whom was made King and erected many buildings at Gaur to which he seems to have transferred the royal residence. He governed 27 years”.

A comparison of this account with that of the *Riyāz*, the author of which also probably drew, in the second half of the 18th century, on local traditions, enables us to add the following information regarding Raja Ganes (or Kāns), and the persons connected with him during his period of influence over mediæval Bengal politics.

(1) *Sultān Ghiyāsuddīn* was a contemporary and fellow student of Makhdūm Nūr Qutbu-l-‘Alam, and was treacherously killed by the stratagems of Raja Kāns, a Zemindar of Bhaturia. According to one account, his reign lasted 16 years, 5 months, and 3 days.

(2) *Saifuddīn*, his son, was placed on the throne by the nobles and generals with the title *Sultānus-Salātīn*. According to one account, he reigned for 3 years, 7 months, and 5 days.

(3) Saifuddīn was followed by Shamsuddīn who, some say, was only an adopted son of Saifuddīn and that his real name was *Shihābuddīn*. He reigned for 3 years, 4 months, and 6 days. Raja Kāns (who had by that time become very powerful) attacking him, slew him, and usurped the throne.

(4) *Raja Kāns* then subjugated the whole of Bengal and oppressed the Muḥammadans. His aim was to extirpate Islam

from his dominions. Owing to the murder, by the Raja, of Shaikh Badru-l-Islam, father of Shaikh Muinuddin 'Abbās, Shaikh Nūr Qutbu-l-Ālam invited Sultān Ibrāhīm of Jaunpur to invade Bengal and rescue the Musalmans. When the Sultān reached Firūzpur (probably old Māldah), the Raja became alarmed and even at first consented to the demand of Shaikh Nūr that, as the price of his intercession with Sultān Ibrāhīm, the Raja should become a Muḥammadan. This displeased the Raja's wife, whereupon Raja Kāns offered his son *Jadu* (whom Ferishta calls Jitmall) for conversion, saying 'I have become old and desire to retire from the world. You may convert to Islam this son of mine, and then bestow on him the kingdom of Bengal'. *Jadu* was accordingly proclaimed King of Bengal under the title Jalāluddīn. When however Sultān Ibrāhīm had retired from Bengal, *Raja Kāns* dispossessed his son Sultān Jalāluddīn and himself re-ascended the throne. He also endeavoured unsuccessfully to reconvert Jalāluddīn to Hinduism, and renewed his persecution of the Muḥammadans. The Raja then died after murdering Shaikh Anwar, the son of Shaikh Nūr Qutbu-l-Ālam, at Sunārgaon. The author of the *Riyāz* adds that, according to some accounts, Jalāluddīn who was in prison, leagued with the Raja's servants and slew him, after Raja Kāns had reigned for 7 years. *Jalāluddīn* then again ascended the throne and persecuted the Hindus. He continued to live at Pandua, but the city of Gaur began to be repopulated in his time, and he is even said to have removed the capital back there. He was buried at Pandua, after reigning 17 years.

(5) Jalāluddīn was succeeded by his son Ahmad who was a bloodthirsty tyrant. After he had reigned for 16 (or 18) years, Shādi Khān and Nāsir Khān, two of his slaves who held the rank of nobles, slew him. The assassins fell out, and Nāsir Khān, after slaying Shādi Khān, placed himself on the throne. He was however slain by the nobles of Ahmad Shāh, either the same day or after 7 days, and one of the (? great)-grandsons of Sultān Shamsuddin (Ilyās) was then raised to the throne with the title of Nāsir Shāh [*i.e.*, Nāsiruddīn Mahmūd Shāh]. The fort at Gaur was erected by this King who reigned for either 27 or 32 years.

I have purposely omitted to mention any of the dates given in the *Riyāz* for, as Blochman was the first to point out in the seventies of the last century, they are all wrong. Those given by Francklin are nearer the mark, but it is better to trust to the evidence of coins, as giving the fullest information not only as regards dates, but also mint names. It was by this means that Mr. Nalini Kanta Bhattasali (Curator of the Dacca Museum, who made a preliminary survey of this period when describing in 1922 the Ketun find in his 'Coins and Chronology of the Early Independent Sultāns of Bengal') was able to prove the existence

of a previously unrecorded King of Bengal, 'Alāuddīn Firūz, and to indicate some of the mistaken readings in the section of the Indian Museum Catalogue that deals with the coinage of Ghiyās-uddīn. I quote below the dates found on coins in my own cabinet, supplementing them where necessary by references to coins in the Indian Museum or elsewhere (given in square brackets).

Kings.	Hijri (dates on coins).
1. Sikandar	[759-787].
2. Ghiyāsuddīn 'Azam (son of No. 1) ..	[793-812], 811, 812 (?), 813.
3. Saifuddīn Hamzah (son of No. 2) ..	814 and 815.
4. Shihābuddīn Bāyazīd	816 and 817.
5. 'Alāuddīn Firūz (son of No. 4) ..	817.
6. Jalāhuddīn Muhammad	818, 819, 821-3, [824, 828], 831 (?), [834].
7. Shamsuddīn Ahmad (Probably reigned from 835-846).	[836].
8. Nāsiruddīn Mahmūd	[848-862].

I have verified by personal inspection that the date 812 given on I.M.C. No. 89 for a coin of Shihābuddīn is probably a misreading for 814, while that of 840 (I.M.S. No. 104) for a coin of Jalāhuddīn is also extremely doubtful, so that no discrepancy seems to occur in the coin dates. The only actual gap in the dates between 810 and 824 is in the year 820, and this is completely covered by the coins of the two kings we have taken up for consideration, as the coins of Danujmarddana were struck in *Saka* 1339 and 1340 (819 and 820 A.H.) while those of Mahendra that have, up to now, been reported were all struck in *Saka* 1340, except for one in my own cabinet (*vide* No. 8 of Plate II) where the unit is certainly not 0 and may be 1.

In dealing with the history of these two Hindu Kings one might expect to find that however short their reigns may have been, they would have received considerable attention in Bengali literature composed by Hindus. It is rather surprising to find, on the contrary, that Mahendra is not mentioned at all, while elaborate search has only produced two references to Danujmarddana. One of these occurs in the autobiography of the poet Krittibās and mentions that his great-great-grandfather, Narasinha Ojhā, settled at Phuliā (very close to Santipur in the present district of Nadiā) and became Minister to a King called Danuj: the other quoted from the *Laghutoshini* of Jīva Goswāmi (nephew of Rūp and Sanātan, the Ministers of Husain Shah in the first quarter of the 16th century) states that Jīva Goswāmi's great-great-grandfather, Padmabha, settled at Naihati and was honoured by King Danujmarddana. There is a similar silence in Bengali literature even about Raja Ganes—with again very few references—only three, all in Vaishnava works. In the *Prem*

Bīlās of Nityānanda Dās, one of the disciples of Chaitanya, who lived from 1485–1528 A.D.—it is stated that one Narasinha Narial came from Sylhet to the presence of Raja Ganes and was honoured by him. The second reference occurs in the *Adwaita Prakāś* of Isan Nāgar, where the important statement is made that it was by the advice of Narasinha Narial of the Brahmin family of Aru Ojhā of Laur, Sylhet, and great-great-grandfather of Adwaita of Santipur (who was himself born in 1434 A.D.) that Raja Ganes was able to become King of Gaur. Finally, in the *Balvalīlā Sutra* of Krishnadās (who, before he was converted to Vaishnavism, was Raja Dibya Sinha of Laur), it is stated that Raja Ganes, having invited Narasinha Narial to his court at Dinājpur, made him his Minister, and that it was by the latter's good counsel that Raja Ganes was victorious over the *Yavana* (Muḥammadan) King of Gaur and became undisputed monarch of Gaur in 1329 *Saka* (1407 A.D.). It must be noted however that as the last-named book has only recently been printed (from a corrected copy of a defective MS. which cannot now be traced), the statements made in it—especially that about the Raja having had his court at Dinājpur—cannot be unhesitatingly accepted.

From the references just given, it is evident that little or no light is thrown on the question as to who King Danujmarddana was, and that though it may be inferred that Danujmarddana probably lived at about the same time as Raja Ganes, no suggestion even is made that Raja Ganes was identical with King Danujmarddana. The only certain information is that Raja Ganes became King of Gaur possibly about 1407 A.D. by conquering and slaying one or more Muḥammadan Bādshāhs of Gaur. This is exactly what is stated by the author of the *Riyāz* and we are therefore driven to the conclusion that in clearing up this obscure period of Bengali history, we have to rely entirely on the statements of Muḥammadan authorities (chiefly those already quoted), as well as on any evidence we can gather from the coins of Danujmarddana, Mahendra, and their immediate predecessors and successors.

The only other important point that has not previously been mentioned is that we know from Muḥammadan sources that the Saint Nūr Qutbu-l-Ālam, who was instrumental in inducing Sultān Ibrāhīm of Jaumpur to retire from Bengal after the conversion of Jadu, Raja Ganes's son, to Muḥammadanism, died in 818 A.H. (=March 13th, 1415 to February 28th, 1416).

It is hardly credible that Raja Ganes would have acted in the way that he is reported then to have done, *viz.* imprisoning son and, after again seizing the sovereignty of Bengal, recommencing to oppress the Muḥammadans, if the Saint had still been alive. We may therefore infer from the facts (*a*) that many coins of Jalāluddīn are known to have been minted in 818 A.H., (*b*) that only a very few coins of Jalāluddīn, dated

819 A.H., are known: and (c) that there is no further mention of the Saint but only of his son Shaikh Anwar whom Raja Ganes murdered; that afterwards, probably, in consequence of the death of Nūr Qutbu-l-Ālam in 818 A.H., Raja Ganes ejected his son from the throne early in 819 A.H. (say about the summer of 1416 A.D.) and seized the kingdom of Bengal.

Now it is precisely at this time that the coins of Danujmarddana dated *Saka* 1339 begin. Moreover, as Mr. N. K. Bhattasali has pointed out, the very title of the King Danujmarddana means 'Destroyer of the Demons'—is in accordance with the behaviour of Raja Ganes if we take the name to be a reference to Muhammadans. The following summary of the dates found on the coins of this period also shows how completely they fit in with the story as given by the Muhammadan historians.

Kings.	Date A.H. (or <i>Saka</i>).	Equivalent date A.D.
ʿAlāuddīn Firūz	817 (very few coins)	March 23rd, 1414—March 12th, 1415.
Jalāluddīn	818 (numerous coins)	March 13th, 1415—Feb. 28th, 1416.
Do.	819 (very few coins)	March 1st, 1416—Feb. 17th, 1417.
Do.	[No coins of 820 known]	Feb. 18th, 1417—Feb. 7th, 1418.
Danujmarddana	<i>Saka</i> 1339	Middle of April, 1416 to middle of April, 1417.
Do.	Do. 1340	April 1417—April, 1418.
Mahendra	Do. 1340	
Do.	Do. 1341 (?) 2-4 coins	April, 1418—April, 1419.
Jalāluddīn	821 (onwards: numerous coins of each of the years 821, 822, and 823)	Feb. 8th, 1418—Jan. 27th, 1419.

A brief study of the table will show practically conclusively that Mr. N. K. Bhattasali's thesis that Raja Ganes and Danujmarddana were one and the same king is correct, and that the title of Danujmarddana was deliberately assumed by Raja Ganes as a visible sign that he had formally renounced his previous obedience to the orders of a Muhammadan Saint.

The extent of the territory controlled by the Kings of Bengal from the beginning of Ghiyāsuddīn's ʿAzam's reign to the end of that of Jalāluddīn will be seen from the annexed Table A, giving the names of their mints from coins, chiefly in my own cabinet. From this table the following facts can be gathered.

(1) Ghiyāsuddīn minted chiefly from Firūzābād (Pandua), but coins belonging to him are also known from Muʿazzamābād (Eastern Bengal) and Satgāw (Western Bengal).

(2) The only mints known up to now as having been active in Saifuddīn's reign are Fīrūzābād and Mu'azzamābād.

(3) In addition to these last mentioned mints, Shihābuddīn also issued coins from Satgānw, as well as, possibly, from Chatgānw (Chittagong).

(4) 'Alāuddīn, and Jalāluddīn (during his first period as King) may only have struck coins from Fīrūzābād.

(5) During the brief reigns of Danujmarddana and Mahendra the name Fīrūzābād disappears, being replaced by the Hindu name Pāndūnagar. The existence of coins from both Sunārgānw and Chātigrām (Chittagong) shows that the whole of Eastern Bengal was under the control of Danujmarddana, and this was probably also the case with Mahendra when he succeeded to the throne.

(6) On the return of Jalāluddīn to the throne, the name Pāndūnagar was replaced at once by Fīrūzābād. Coinage also reappeared from Satgānw and Mu'azzamābād. Possibly the Chittagong mint also occasionally struck coins.

Summing up all the available facts, it appears therefore that the true history of Bengal during the first quarter of the 9th century A.H. was as follows: Raja Ganes, who was zemindar of Bhaturia,¹ a tract of country which lay on either side of the Atrai River (*i.e.*, the South East corner of the present Rājshāhi Division) began to acquire considerable influence over the affairs of Bengal during the late years of Sultān Ghiyāsuddīn—say 800-813 A.H. (1397-1410 A.D.), and, according to the *Riyāz* he treacherously killed this king. The nobles then placed Ghiyāsuddīn's son, Saifuddīn Hamzah, on the throne. The coins of this King show that he reigned for at least 2 years (814 and 815 A.H.) and that he assumed the title *As-Sultān-us-Salātīn Sikandar ath thānī* 'King of Kings, the Second Alexander'. Saifuddīn was succeeded by Shihābuddīn Bāyazīd, who was either the slave or adopted son of Saifuddīn. Shihābuddīn remained on the throne for perhaps 2 years (816 and part of 817 A.H.) and may have been slain by Raja Ganes, who then tried to occupy the throne. From the fact however that Shihābuddīn was succeeded by his son 'Alāuddīn Fīrūz and the absence of any coins of Raja Ganes, struck in his own name, it is clear there was a considerable amount of active resistance to the Raja's plans from the Muḥammadan nobles and priests. This finally led to Sultān Ibrāhīm of Jaunpur being requested by the Saint Nūr Qutbul 'Ālam of Pandua to invade Bengal, and Raja Ganes was forced to consent to his own son Jadu being converted to Muḥammadanism and placed on the throne of Bengal with the title of Jalāluddīn Muḥammad early in 818

¹The correct spelling is probably Bhāduria, as Raja Gan have belonged to the Bhāduri family of Varendra Brahmins.

A.H., in place of 'Alāuddīn Firūz who had probably been killed by Raja Ganes soon after his accession to the throne in the previous year. Jalāluddīn continued as King throughout 818 and for part of 819 A.H. but, owing to the death of Nūr Qutbu-l-'Ālam in 818 A.H., Raja Ganes deposed and imprisoned his son in 819 (1416 A.D.) after an ineffectual attempt to reconvert him to Hinduism. Raja Ganes then ascended the throne, taking the title of Danujmarddana, but died in the next year. As already noted, he struck coins dated *Saka* 1339 and 1340 (=8½ months of 1416, the whole of 1417, and 3½ months of 1418) from Pāndūnagar (Firūzābād—the present Pandua), Sunārgānw, and Chāt-gānw (Chittagong). He was followed in the same *Saka* year 1340 (April 1417 to April 1418) by a King called Mahendra who may also have continued to rule for some portion of the following *Saka* year, 1341 : but, meantime, Jalāluddīn, who may have had some hand in his father's death, had escaped from prison, and succeeded in 821 A.H. (=1418 A.D.) in firmly re-establishing himself on the throne which he continued to occupy until probably 835 A.H. (i.e., 1431 A.H.) when he was in turn succeeded on the throne of Bengal by his son Shamsuddīn Ahmad Shāh. The last named king seems to have been a less satisfactory ruler than his father, and, after reigning for 10 or 11 years, he was assassinated. A brief period of confusion ensued, after which a scion of the family of Hyās Shāh became King with the title of Nāsiruddīn Maḥmūd and fully restored the glory of his great-great-grandfather's times. Nāsiruddīn Maḥmūd resided at Gaur and it is probably he who built the Fort there.

A few words may be said in conclusion regarding the identity of the King Mahendra who followed Danujmarddana. This King does not mention who his father was on his coins, so that he might not even have been connected with Raja Ganes' family at all. The only clue is given in the history of Ferishta, who, unlike other Muḥammadan historians, seems to have gathered that some people at all events considered that Raja Ganes was not so anti-Muḥammadan as the accounts previously quoted try to make out. He even states that when Raja Kāns died, certain Muḥammadans claimed the Raja was a Musalman and wished to bury him with Islamic rites. Ferishta then goes on to give the following account of Jalāluddīn's (second) accession: "Jitmāl, after the death of his father, summoned the nobles and all the other pillars of the State and said: 'The truth of the Islamic religion is clear to me and I have no alternative but to accept it. If you accept me and do not wish to stray away from my sovereignty, I will place my feet on this honourable throne: otherwise let my *younger brother* be King and excuse me.' All the officials unanimously declared: 'We follow the King in worldly affairs and have nothing to do with religion'. Then Jitmāl having summoned the learned men and elite of



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Lakhnauti, uttered the *Kalimah*, and having assumed the title of Jalāluddīn, ascended the throne ”.

Failing any definite proof of the identity of Mahendra, it seems reasonable to read between the lines of Ferishta's account and identify Mahendra with the younger brother of Jadu, Jalāluddīn. Mahendra had probably already been placed on the throne in succession to Raja Ganes by the Hindus, while Jalāluddīn would be addressing chiefly a Muḥammadan audience who were already prepared to support him. We can easily picture the sequel: pursuit and ultimate death of Mahendra and thereafter undisturbed rule over the whole of Bengal for Jalāluddīn.

H. E. STAPLETON.

299. A BRIEF HISTORY AND DESCRIPTION OF HIS MAJESTY'S MINT, CALCUTTA.

In Captain Henderson's Chronological Table published as an Appendix to the Journal of the Asiatic Society in 1836, it is stated that the English established a Mint in Calcutta in 1757, and the first rupee was struck on the 29th August of that year.

The right to establish a Mint was one of the stipulations of the Treaty with Sirāj-ud-Daula, dated 7th February, 1757.

Thurston, however, gives the date of the Mint as 1759 or 1760, when a "PARWĀNA" was obtained.

Possibly the right of Minting was in dispute for some time.

There is a reference in a despatch to the Court of Directors in 1753 mentioning the need for the utmost secrecy regarding the proposed Mint and the question of presents totalling two lakhs of rupees necessary to arrange matters is also referred to.

The Reverend Rogers Ruding in Vol. IV of his Annals of the Coinage of Britain published in 1819, gives the first mention of a Mint in Calcutta as occurring in June, 1766.

The site of this first Mint is not known. The coins produced were crude specimens struck between dies with a hammer and were really counterfeits of the Moghul coins then in circulation. With such primitive methods no special building would be necessary and possibly none was built.

THE SECOND CALCUTTA MINT.

In 1790 machinery was sent out from England and coins of modern type with milled edges were struck. This machinery was erected in buildings on the site of Gillett's ship building establishment.

This site was taken over in 1833 by the Stamp and Stationery Committee. It is probably the land now occupied by the Stationery Office between Strand Road and Church Lane.

MACHINERY OF THE SECOND CALCUTTA MINT.

Some details of the machinery used can be gleaned from a report, dated 1819, from the Mint Committee recommending that a new Mint should be built and that new machinery of modern design driven by steam should be obtained from England.

It is stated that the Rolling Mill was then worked by manual labour, forty coolies being employed to turn the Mill. Their wages were Rs. 5 per mensem. Four reliefs were necessary in order to roll the metal required to coin one lakh of rupees in 12 hours. It is not surprising that the working of the Mill was

irregular and great variation occurred in the thickness of the fillets or straps, resulting in many rejected coins.

It is interesting to compare this Mill with the existing Rolling Mills driven by Electric power with motors of 150 horsepower and each capable of rolling metal for 3 lakhs of rupees in seven hours.

Melting was done in a large open fire of charcoal in which many small pots containing only 1,000 tolas each were placed. There was apparently no chimney.

The heat and fumes were so bad that it was impossible to supervise the work of the melters, who were thus able to abstract silver and substitute some other metal with impunity. Melters were paid Rs. 10 per mensem and found a security of Rs. 2,000. There is evidence to show that the job of Melter was a lucrative one in those days.

ROLL OF MINT MASTERS.

The roll of Mint Masters dates from 1792. At some time prior to this date Robert Harris was Master and in a recent issue of "*Bengal Past and Present*," there is mention of a tombstone in Park Street cemetery dated 1781, to the memory of a son of *Herbert Harris*, Mint Master.

The most eminent name in the roll is that of William Nairn Forbes of the Bengal Engineers.

Forbes as a subaltern in December, 1819, was deputed to England to superintend the manufacture of the machinery for the new Calcutta Mint. He returned to Calcutta in 1823, and the foundation stone of the present Silver Mint was laid on 31st March, 1824.

Lt. Forbes was the Architect and first Master, and he continued as Master until his death which occurred at sea near Aden on 1st May, 1855. He had by then risen to the rank of Major-General. Major-General Forbes was also the architect of St. Paul's Cathedral, Calcutta, and there are still in the Mint some fine old engravings of various English Cathedrals which must have been obtained by him for guidance in the design of the Calcutta Cathedral. There are also some rough sketches and preliminary designs.

General Forbes must have been a very remarkable man. He was both a fine architect and a highly skilled mechanical engineer.

One can understand that the difficulties he had to contend with both in the building of the Mint and in the erection and setting to work of the complicated machinery were considerable.

The Court of Directors of the East India Company fully recognised his attainments. They placed a marble bust of him suitably inscribed in the Mint and also erected a memorial to his memory in the Cathedral.

Another eminent master was Col. Richard Baird Smith, C.B., who was Chief Engineer of the Army of the siege of Delhi.

Among the Assay Masters occur the names of James Prinsep in whose honour Prinsep's Ghat was erected and Dr. Busteed, author of "Echoes of Old Calcutta".

THE PRESENT MINT.

The New Mint was opened for coinage on 1st August, 1829.

The façade of the Mint facing Strand Road is supposed to be a copy on a smaller scale of the Temple of Minerva at Athens. This façade conceals the ugly utilitarian buildings lying behind it.

Owing to the treacherous soil the old Mint was in a ruinous condition with roofs cracked and walls leaning over. The Superintending Engineer of the Public Works Department reported that the buildings could not be repaired but would have to be entirely rebuilt if used for the new machinery. Forbes took care to guard against this danger in the New Mint.

Very massive foundations were laid and they go down 26 feet below ground level so that there is nearly as much brick-work below ground as above.

In 1826 an army was being formed for the siege of Bhurt-pore. There are in the records several letters from Forbes begging to be allowed to join this Army. He was eventually permitted to do so and was present at the siege and capture of the fortress.

During Forbes' absence on active service someone in authority desired to inspect the progress of the building of the Mint. He was alarmed to find nothing showing above ground. On his return from the siege, Forbes was called upon for an explanation which he no doubt furnished without difficulty.

Besides the very solid foundations for the building and for the heavy machinery, an enormous quantity of masonry was required for the subterranean tunnels for the condensing water of the primitive steam engines and flues for the chimneys. Only recently difficulties have been experienced in laying foundations for new machinery owing to the unsuspected presence of one of these tunnels.

The buildings cost 11 lakhs of rupees and the machinery sufficient to coin two lakhs of silver pieces per diem cost Rs. 13 lakhs.

BOULTON AND WATT'S COINING MACHINERY.

The machinery was similar to that which had recently been installed, after much opposition, at the Royal Mint, London. It had been perfected by Boulton and Watt at Soho, Birmingham,

prior to 1788 and had been used for copper coin for France and the Colony of Bermuda and in 1794 for coinage for the Madras Presidency.

It was not, however, until 1797 that Boulton obtained an order for copper coinage for Great Britain. This coinage was such a success that Boulton was employed to erect the new Mint on Tower Hill and the machinery for it was manufactured at Soho, Birmingham. Thereafter, he supplied similar machinery to the Royal Mints of Russia, Spain, and Denmark and subsequently for Mexico, Calcutta, and Bombay.

The Coining Presses supplied to Calcutta in 1829 and similar ones supplied in 1860 are still in use without material alterations and have given remarkable service. Those supplied to Bombay are also still in use.

Though they occupy much space, make a terrific noise, and consume much power they are still considered the best for turning out large quantities of heavy coin such as the rupee under the conditions obtaining in India.

Several attempts have been made to replace them by modern presses but hitherto without success.

Boulton may be regarded as the father of modern Minting. With the assistance of Watt he first applied steam to the working of coining machinery.

The story of his life, his wonderful mechanical genius, his perseverance in the face of enormous difficulties and the opposition of his contemporaries is of absorbing interest to any one connected with the minting of coin.

There is in the Mint a fine collection of medals and coins struck at Soho, Birmingham, between 1780-1820.

For artistic design, skilful handicraft, and perfection of execution they have rarely been surpassed.

This collection was presented to the Mint in 1855 by Captain Forbes, R.E., believed to have been the son of Major-General Forbes.

It is probable that the medals and coins were presented to General Forbes by the firm of Boulton and Watt as samples of what their machinery could produce.

SILVER COINAGE RECORDS.

The records of the silver coinage executed at the Calcutta Mint date from 1801-02, in which year Rs. 30 lakhs Sicca and gold coins valued at nearly one lakh of rupees were struck.

These records show a fairly steady yearly output up to 1835, the largest being in 1819-20 when 263 lakhs Sicca were coined.

There is no marked increase following the completion of the new Mint. This is explained by the fact that it was employed for sometime chiefly on pice. It was not till 1835 when the

William IV coins of English design were ordered that any marked increase of output appears.

NEW COPPER MINT.

In 1860 a separate Mint intended exclusively for the coinage of copper was built to the north of the Silver Mint. The Silver Mint is now capable of giving an output of Rs. 6 lakhs in a working day of 7 hours and in the Copper Mint five lakhs pieces of bronze or cupro-nickel can be struck.

The two Mints are self-contained, each comprising Melting, Laminating and Cutting, Annealing and Stamping and Packing Departments.

The Silver Mint has in addition an Automatic Weighing Department for weighing of blanks before they are struck.

The Bullion and General Offices, Workshops and Stores are common to the two Mints.

RECORD COINAGE.

In the year 1918-19 nearly 546 million coins were struck in the Calcutta Mint and on one day alone the output exceeded 18 lakhs rupees, besides small coins.

This is nearly double the record annual output of the Royal Mint in London and is believed to exceed that of any Mint in the world.

At the present time, though Calcutta is responsible for supplying the whole coinage needs of India, the Silver Mint is almost disused but the Copper Mint is fully employed and was recently working on overtime to an output of $7\frac{1}{2}$ lakhs pieces daily.

COINS STRUCK IN THE CALCUTTA MINT.

In addition to the Government of India coins which are familiar to all, there have been regular issues of coinage up to recent years from the Calcutta Mint for the Straits Settlements and Ceylon and occasionally of British Dollars for Hongkong.

Coins have also been struck in the past for the Indian States of Dewās, Bikānir, and Dhār, Sailāna and Puddokotai. The latter's coin is the Aman Cash, the smallest coin struck in the Mint, orders for which are still received periodically. Other coins include the Portuguese India One Rupee, $\frac{1}{4}$ Tanga and $\frac{1}{8}$ Tanga of 1881-1886, Pice for British East Africa in 1888, coins for the Sultān of Lahej near Aden in 1895 and Penny and Half-penny pieces for the Australian Government during the Great War.

An interesting recent issue was that of half-rupee size coins for Bhutān. The Mint is now engaged on a new series of coins for Udaipūr.

MINT RECORDS.

The records of the Mint date from 1792. The old records are in copper plate manuscript and the letters are generally in perfect English, but would now perhaps be considered somewhat pedantic.

There is much correspondence regarding escorts for treasure by country boats on the river. There are frequent references to disease and death showing the unhealthiness of Calcutta in the early days.

Petitions for more pay were then, as now, common.

Estimates for the machinery for the Benares and Saugor Mints are to be found in the records of 1820. This machinery was supplied by a well-known Engineering firm, still flourishing in Calcutta.

The records for the years 1857-58 do not contain any interesting references to the Mutiny. Two Mint Assistants were given leave to join some unit known as the Yeomanry Cavalry but they were subsequently not permitted to retain a lien on their appointments.

There is a letter dated 31st August, 1853, referring to the transfer of India from the East India Company to the Crown and the necessity for a new device to be stamped on the coins. This must have led up to the issue of the 1862 coins.

In those days the date of coins was not changed yearly as at present. This was probably due to there being no skilled engravers available and if any changes were made, new matrices would have had to be obtained from England.

It was not till 1874 that a yearly change of dates was instituted. Rupees prior to 1874 are dated 1835, 1840, or 1862 only.

Prior to the building of the Copper Mint, large quantities of copper coins were imported from England.

300 tons of pice struck by Ralph Heaton & Sons, Birmingham, were sent out in 1857.

54 lakhs of blanks were lost in the wreck of the "Rajah," off Diamond Point in the same year.

There are many references in the records to stores and coin lost in wrecks.

MEDALS AND DECORATIONS.

An important duty of the Mint is the manufacture of medals and decorations.

The earliest medal of which the dies are in the Mint is that for Service on the Island of Ceylon 1795-96.

Other early medals are Seringāpatam 1799, Egypt 1801, Isle of France 1809-10, Java 1811, Nepal 1814-16, Coorg 1837 and a series of Afghānistān Medals of 1839-42.

The first India General Service Medal is dated 1854 and a total number of 20 clasps was issued with this. There were

four later designs of this medal and further clasps to date bring the total to 38, the latest being "Waziristān 1925".

In connection with the Great War, the 1914-15 Bronze Star and the British War Medal were struck in the Calcutta Mint in large numbers.

The familiar Indian Military and Civil decorations, 18 in number, are struck in the Mint every year.

Many other medals are struck for Universities, Colleges, and other institutions.

Other interesting medals include one commemorating the opening of the East Indian Railway to Rājmahāl in 1860 and the MacGregor Memorial Medal of the United Service Institution of India dated 1887 and showing types of the British and Indian Armies of that period.

The latest medal of interest is that of the Simla Fine Arts Society, the design of which is a copy of the figure of a bull taken from a seal which is the oldest known engraving in India and was found at Mohenjo Daro.

The thrones used by Their Majesties the King and Queen at the Delhi Durbar were cast in silver at the Calcutta Mint, 96,000 old rupees being melted for this purpose.

Plaques for the Durbar Monument at Delhi and several Memorial Tablets of the Great War were also prepared in the Mint.

WEIGHTS AND MEASURES.

One of the duties of the Mint is the checking for the public of weights and measures. There is at present no standard of weights and measures enforced throughout India, as is the case in other countries. The reason for this is that there is too wide a variation in standards still in common use.

The Railway standard of weights is, however, generally accepted and many Municipalities now maintain standard weights for checking weights used in their area.

Sets of standard weights are supplied by the Mint to such Municipalities as require them and these are returned periodically to the Mint for check.

Many weights are also sent by the public to the Mint for check.

The primary standards which are in the custody of the Mint consist of a 30 tola piece, a 100 grammes piece and a troy ounce—all made of Iridio-platinum. These were obtained from England and are of great accuracy.

The Mint also possesses complete sets of Reference and Working Standards for tola and avoirdupois weights which are periodically checked by the Assay Department.

The Calcutta Assay Office was closed as a measure of retrenchment in 1923 and since then the Mint is no longer able to adjust weights to the accuracy of the Reference Standards.

Working Standards are used and are sufficiently accurate for all general purpose. All assay work for the Calcutta Mint is now done at the Bombay Assay Office.

COUNTERFEIT COINS.

While the Mint is primarily concerned with the minting of genuine coin, it has much work in connection with the prevention of counterfeiting.

With a large percentage of illiteracy in the population and with many districts remote from Police or other supervision the counterfeiter finds his nefarious trade a profitable one.

There are criminal tribes who have been known as counterfeiters since Moghul days.

The Mint is constantly called upon to furnish expert evidence in cases connected with the counterfeiting of coins.

There is in the Mint Museum a Show-case of counterfeit coins and implements used by counterfeiters. It bears the inscription "RADIX ENIM OMNIUM MALORUM EST CUPIDITAS".

H. STAGG.

300. RARE MUḠHAL COINS IN THE STATE MUSEUM (HĀIDARĀBĀD, DECCAN).

Mr. Ghulām Yazdāni, Director of the Archæological Department, H.Ē.H. the Nizam's Government, has kindly asked me to arrange and catalogue the coins of the Haidarābād Museum. While examining them, I have come across certain issues which may interest numismatists. I propose to describe some which relate to new mints or throw fresh light on the history of the period. I will first describe a new Bahmani coin and then Muḡhal coins according to their mints.

BAHMANI COIN.

Mint Faṭḥābād.

This coin adds one more to the number of the Bahmani Mints hitherto published.

Obverse.

سلطان
العهد و الزمان
حامي ملة رسول
الرحمن

Reverse.

ابو المظفر
محمد شاه بن
بيمن شاه السلطان (sic)
ضرب | حضرت | فتاح آباد | ٧٦٤



Aḥsanābād (GULBARGAH).

Mr. R. B. Whitehead in his Mint Notes observes: "From 1115 to the end of the reign, the Bahmani name of the town (*i.e.*, Aḥsanābād) was revived on both gold and silver coins". The three Rupees, in the Cabinet of the Haidarābād Museum stamped below, prove that the name was revived as early as 1112 A.H. (if not earlier) at least on the silver coins. The following is the reading:—

<i>Obverse.</i>	<i>Reverse.</i>
عالم (گیر)	مانوس
۱۱۱۲	میمنت
اورنگ زیب	۴۵
زده چو بدر منیر	سنه جلوس
سکه	ضرب
در جهان	[۱] حسن آباد

Mint Bijāpūr.

I will next take a set of Mughal coins from the Bijāpūr Mint. In N.S. XXX, Mr. C. J. Brown observes that he has not come across any coins from the Bijāpūr mint dating between the 24th and 30th Regnal years of Aurangzeb. The undermentioned is one of the 26th Regnal year.

It will be interesting to note that the Hijri year 1091 was stamped not only on coins of the 23rd and 24th Regnal years, but also on those of 26th Regnal year, of which 2 specimens are now in our Cabinet. The following is the reading of the coins:—

<i>Obverse.</i>	<i>Reverse.</i>
عالم گیر	مانوس
۱۰۹۱	میمنت
اورنگ زیب	۲۶
سکه	سنه جلوس
زده چو بدر منیر	ضرب
سکه	بیدجاپور
در جهان	

I may here add that the reading *مجلوس* for *جلوس* mentioned in the N.S. XXX, page 265, is not to be found on a coin of the 23rd Regnal year in the Museum of Haidarābād.

<i>Obverse.</i>	<i>Reverse.</i>
عالم گیر	مانوس
۱۰۹۱	میمنت
اورنگ زیب	۲۳
سکه	سنه جلوس
زده چو بدر منیر	ضرب
سکه	بیدجاپور
در جهان	



The earliest coin known with the *Dāru-z-zafar* epithet is said to be of the 31st Regnal year, with the Hijri date missing (N.S. XXX, page 265). The undermentioned is a coin of 1097 A.H. and of the 30th Regnal year :—

<i>Obverse.</i>	<i>Reverse.</i>
عالم گیر	جلوس
۱۰۹۷	میمنت
اورنگ زیب	مانوس دار الظفر
سـ	۳۰
(ز) د چو بدر منیر	بیجاپور سنہ
سـ	ضر
در جهان	

There is a unique coin of this very mint of the 42nd and 43rd or 44th Regnal year of Aurangzeb which has the word “*Nāik*” below ‘*Zarb*’ and before the epithet *Dāru-z-zafar*. It might have been struck by one of the *Nāik* feudatories of the Mughal Emperors. The coin reads as follows :—

<i>Obverse.</i>	<i>Reverse.</i>
عالم گیر	مانوس
اورنگ زیب	۴۲
سـ	سنہ جلوس
زد چو بدر منیر	ضر
سـ	نائک دار الظفر
در جهان	بیجاپور



Mr. R. B. Whitehead, in his mint notes, has stated that “After Farrukhsiyar the mint *Bijāpūr* disappears from the Mughal series”. The following rupee of *Muhammad Shāh* from the same mint shows that it was active even after *Farrukhsiyar* :—

Obverse.

محمد شا

باد غازي

ارا

Reverse.

بلو

ميمنت مالو

سنه ۳

ظفر

بيجاپور



Bareilly.

Mr. R. B. Whitehead observes :—

“Coin No. 1626 is dated 1100, but a rupee earlier by two years is in the Cabinet of Mr. H. Nelson Wright (Mint Notes P.M.C.).

The Haidarābād Museum cabinet has a unique rupee of 1097 A.H.—29 R.Y., one of the R.Y. 29 and one of 1098 A.H. 30 R.Y.

Obverse.

عالم گیر

اورنگ زیب

۱۰۹۷

س

زد چو بدر منیر

س

در جهان

Reverse.

مانوس

۲۹

سنه جلوس

س

بریلی

Weight.



Phondā.

A coin of Aurangzeb from the mint Phondā, if my reading is correct, adds one more name to the list of Mughal Mints. On my showing the coin to Mr. Yazdāni, he advised me to look for it somewhere in the Deccan. I have been able to find it near Goa.

It is a very old place and had a very strong fort during the time of the 'Ādil Shāhis, Mughals and Marāthās. It is now in the possession of the Portuguese. The following is my reading:—

Obverse.

اورنگ زیب عالم گیر
س
[ز] د چو بدر مذہر
سکھ

Reverse.

سنہ ۴۳
مانوس
میمنت
جلوس پھوندا
ک

*Jitpūr.*

A coin of Ahmad Shāh from Jitpūr, if my reading is correct, adds one more to the list of Mughal Mints. The following is an extract from Imperial Gazetteer of India, Vol. XIV, page 102.

“Fortified town in the State of same name, Kāthiāwār, Bombay, situated in 20° 45' N. and 70° 48' E. on the western bank of Bhādar river.”

It reads thus:—

Obverse.

احمد شاه بہادر
س
باد شا غاز
سکھ مبار

Reverse.

مانوس
میمنت
سنہ جلوس
ضرب
جیت پور

*Kovilkinda.*

A coin most probably of 'Ālamgir II adds one more name to the list of Mughal Mints. Kovilkinda is an old place with

a fort in the Maḥbūbnagar District, of H.E.H the Nizam's Dominions.

The following is a reading of the coin :—

Obverse.

عالمگیر ثانی

... فصل

Reverse.

مانوس

میمنت

جلوس احد

کوبلکند [۱]



KHWĀJA MUHAMMAD AHMAD.

301. RARE MUGHAL COINS IN MY CABINET.

(1) *A mohar of Kām Bakḥsh, 1119—1, Nuṣratābād Mint.*

A rupee of Kām Bakḥsh is known of this mint, but this is the first time that a mohar has come to light. It is also the earliest known gold coin.

<i>Obverse.</i>	<i>Reverse.</i>
کام ش دین	مانوس
س —————	میمنت
و رشد و مالا	سنه جلوس با
سکه ۱۹	ضرب
دکن زد	ت

As is seen in all coins of this mint نصر is cut off; only ت of Nuṣrat is visible and the *alif* of ābād is in the loop of the س of Julūs and is followed by با. Again د of ābād is cut off.

Weight 168 grains.

Size 85.

(2) *Nuṣratābād rupee of Shāh 'Ālam II.*

This coin may be either of Shāh 'Ālam II or 'Ālamgir II. It is not possible to say which, as the name is cut and there is no Hijri date. But from the ornamentation of dots on both obverse and reverse and from the style of lettering, it seems to me to be of Shāh 'Ālam II. It is of the seventh Regnal year and is certainly of Nuṣratābād. The two nuqtas below نصر (Nusr) are those of the ت which is cut off. The mint name here is written exactly as in the Aurangzeb rupee described by Mr. H. Nevill in Numismatic Supplement XXX, page 260.

<i>Obverse.</i>	<i>Reverse.</i>
بادشاه غازي	مانوس
سکه مبارک	میمنت
	سنه جلوس
	ضرب
	نصر آباد
	ت

Weight 173.

Size 95.

(3) *A mohar of 'Ālamgir II. Mint Nuṣratābād (عُرف) alias Dhārwar.*

The mint is probably Nuṣratābād with the addition (عُرف) (alias) of some name of which two letters are clear viz., ر (re) and و (vāv) or perhaps د (Dāl). It is quite possibly Dhārwar.

Nusratābād was considered by Mr. Irvine to stand for Sakkar (or Sagar) and by Mr. Nelson Wright to represent Dhārwar (see I.M.C. and P.M.C. under mint name Nusratābād and N.S. XII, page 381). If this coin is really of that mint as seems probable, it supports Mr. Nelson Wright's contention: the *ṣ* followed by *ṛ* cannot form part of Sakkar or Sagar.

There is another peculiarity about this coin. The Hijri year is given in an inverted fashion as 1181 (1180=A.D. 1766-67) over *sana* (سنه) in place of the Regnal year. As 'Ālamgir's last year was 1173 A.H., the coin must have been issued under Shāh 'Ālam II. This is not surprising if the coin is of Dhārwar; for it was in the possession of the Marāthās from 1753 A.D. (see Gazetteer under Dhārwar). The workmanship is also of an inferior type.

The mint is certainly not ظفر نگر (Zafarnagar), as the alias does not fit, for Zafarnagar is identified by Professor Hodivālā with Tamarni (N.S. XXXIV, page 240). It cannot also be the Zafarābād which was supposed by Dr. Taylor to be Zafarābād (Bīdar) in the Deccan (N.S. XII, page 334).

Obverse.

بادشاه غازي عالم گير
صاحب قران ثانی

Reverse.

نصر عرف درو
ضرب
جلوس میمنت مانوس
۸۱۱
سنه

Weight 167.

Size. 95.

(4) *Aurangzeb Rupee. Mint Pūna.*

This rupee is of the Mint Pūna and of A.H. 1111, Regnal year 45, of Aurangzeb. It can be no other than our "Pūna," for even on the later coins with the epithet Muhyābād, Pūna, is written in the same way. This variety is not explicitly referred to in Prof. Hodivālā's Article in N.S. XXXI 196, for there he deals only with the origin of the name Muhyābād given to the place. But this coin goes to confirm the passage quoted by Prof. Hodivālā, from Khāfi Khān, who says that it was in the 47th year of his reign that Aurangzeb gave the name Muhyābād to Pūna. Naturally, therefore, this coin of the year 45 only bears the old name Pūna without the alias Muhyābād. It is perhaps unique, as I do not know of any other with the mint-name Pūna of any King before Shāh 'Ālam II.

(5) *Mohar of Aurangzeb, 1117 Hijri; 50 R. Y. Mint Mailāpūr.*

The weight, 170 grains, the size, a little under .9 and the inscription all point to its genuineness. No doubt the numerals

of the Hijri date are not well formed, it being very difficult to engrave such small figures on dies and then to stamp them on gold. There is a slight dent in the units figure of the date which shows that it is not a "one" but probably a "seven". We find in the Lucknow Museum a gold coin, No. 3441, of the same type of Mailāpūr, issued by Shāh 'Ālam Bahādur only 4 years after this coin. There is a similar coin of Shāh 'Ālam of 1121 Hijri in the British Museum, No. 860. It is, therefore, quite probable that the mint was started in Aurangzeb's time.

<i>Obverse.</i>	<i>Reverse.</i>
۱۱۱۷	مانوس
اورنگ زیب عالم گیر	میمنت
شاه	۵۰
چو بدر منیر	سنہ جلوس
سکہ	ضرب
جہان	میلا پور

Mr. Nelson Wright was good enough to compare this mohar with the British Museum rupee of Shāh 'Ālam Bahādur of this mint and he writes to me that both the coins have the same style of lettering.

(6) *Arkāt rupee of Shāh 'Ālam II.*

Hijri 1193.

Regnal year 19.

The mint is certainly Arkāt, being inscribed exactly as on the well-known coins of Arkāt of the East India Co. See, for example, B.M.C. 103 but it is different in having the name of Shāh 'Ālam instead of 'Ālamgir as in the B.M.C. coin and in not having Shāh 'Ālam's couplet as in the Lucknow M.C. coins Nos. 4519 to 4531.

Weight 175.

Size 9.

<i>Obverse.</i>	<i>Reverse.</i>
شاه عالم	مانوس
بادشاه غازی	میمنت
۹۳	۱۹
	سنہ جلوس
	ضرب
	ارکات

(7) *A Cambay rupee of Shāh 'Ālam II.*

No coin of Cambay of Shāh 'Ālam II is recorded in any of the published catalogues of the different Museums (B.M.C.,

I.M.C., P.M.C., and Luc. M.C.). Mr. Whitehead in his mint note on Cambay in the Catalogue of the Coins in the Punjab Museum says that "Coins in all three metals are known of Shāh 'Ālam I, but Rupees only of all the succeeding Emperors except Shāh 'Ālam II". Dr. Taylor in his article on this mint in N.S. XX, No. 119 writes as follows:—

"Though Cambay became practically independent of the Imperial Power as early as A.D. 1730, its coins continued to bear the name of the regnant Mughal Emperor of Delhi, certainly till the time of 'Ālamgir II and possibly even later." Evidently Dr. Taylor had not seen a rupee of Shāh 'Ālam II when he wrote the article above referred to in 1912. He was, however, right in advancing the conjecture that possibly even after the reign of 'Ālamgir II, coins of this mint were struck in the name of the reigning Emperor.

There is another point in regard to which the coin deserves notice and this is the spelling of the mint name. The usual ن (nūn) after the first letter ک (kāf) is not to be seen, and its place is taken by م (mīm). The first Mughal coin bearing this mint name has the spelling with a ه (he) after ک (kāf) and also a ن (nūn)—Khanbāyat کهنبايت. In the early part of Aurangzeb's reign this spelling was altered to Kanbāyat کنبايت without the ه (he) and so it continued till 'Ālamgir II. This is the first specimen with م (mīm) کمبايت.

VICĀJI D. B. TĀRĀPOREVĀLĀ.



1



2



3



4



5



6



7



302. THE MONETARY SYSTEM OF INDIA AT THE TIME OF THE MUHAMMADAN CONQUEST.

[NOTE.—*This Prize Essay is published only in compliance with the wishes of the Numismatic Society of India as expressed by Resolution 4 of its Annual Meeting, 1931.*—EDITOR.]

The conquest of India by the Muhammadans really began only with the invasions of Shihābu-d-din (Muhammad Ghori). Shortly before the time of Shihābu-d-din, the following dynasties were prominent in Northern and Central India and to one or other of these dynasties the numerous petty princes of India paid homage and feudal service. Mr. Thomas is of opinion that the right to issue a particular species of currency was conventionally confined to the Lord Paramount among the Rajput States for the time being. So it will suffice if we take into consideration the monetary systems of these dynasties alone.

1. Tomaras in Delhi.
2. Chauhāns in Ajmer (afterwards in Ajmer and Delhi).
3. Rāthors in Kanauj (after the Tomaras).
4. Bāghilās in Gujarāt.
5. Chandellas in Bundelkhand.
6. Rajputs in Narwar.

The gold coins of this period were exact copies of the gold coins of Gāngeyadeva of the Kalachuri dynasty of Dāhala.

The device of "the seated bull and horseman" introduced by the Brāhman kings of Kābul on their silver coins was copied by almost all the rulers of this period in their billon and copper coins. These "bull and horseman" coins are mentioned by Muhammadan historians as "Dilliwāls" and were adopted by the early Muhammadan conquerors, the Sultāns of Delhi. But their particular Hindu name is not known.

So in order to have a correct view of the monetary system of Northern India we must study minutely the systems of Gāngeyadeva and the Brāhmana kings of Ohind.

The design of the coinage of Gāngeyadeva which was copied by the above rulers was a very simple one. The king's name occupies the whole surface of the obverse and a rudely executed figure of a seated goddess appears on the reverse. The coins of Gāngeyadeva exist in three metals, Gold, Silver, and Copper and in four denominations, namely, the *dramma* (drachma), half-*dramma*, quarter-*dramma* and one-eighth-*dramma*.

Various kinds of drammās are mentioned in the Siyādoni inscription of the 10th century A.D. Drammās are also

mentioned in the inscriptions at (1) Jaunpūr—A.D. 1216 (*Archl. S. Reports*, XI, 176). (2) Bosani—A.D. 1207 (*Archl. S. Reports*, XXI, 102). (3) Gwālior—A.D. 875 (Bhojadeva of Qanauj). (4) Pehewa—903-907 A.D. (*Ep. Ind.*, Vol. I, 184). (5) Asni—A.D. 917 (*Ind. Ant.* XVI, 174). From these inscriptions we must take it for granted that the dramma was the monetary standard in Northern India from the 9th to the 13th century A.D. The name dramma was originally derived from the Attic drachma with which it harmonises in the standard of weight, the latter being about 67·2 grains.

For an illustration let us take up for consideration the Shadboddika dramma mentioned in the Jaunpūr inscription. The term Shadboddika means six (shad) boddikas. Now the word “Boddika” is accepted by the authorities as the corrupt Hindi pronunciation of the Sanskrit word *pādika*. The *pādika* (one-fourth) was equal to one-fourth of the ancient *Kārsha*. Cunningham (*C.A.S.*, XI, 176) is of opinion that “as the *Kārsha* contained 44·8 grains of pure silver, the *pādika* was exactly equal to the Greek Obolus of 11·2 grains”. Hence we see that the Shadboddika dramma was equal to $11·2 \times 6$ or 67·2 grains or the same as the Greek drachma and the boddika represented the Obolus.

The *Śrīmadādivarāha dramma* is mentioned in the Gwālior inscription of Bhojadeva, Gurjjara-Pratihāra king of Kanauj and Northern India who reigned from about 840 to 890 A.D. The weight of good specimens of these drammas ranging up to 63 grains agrees with that of the Greek drachma.

The *Vigrahapāla dramma* was also of the same weight as the *Shadboddika* drammas. Fractions of this coin are also mentioned as half and one-third of a *Vigrahapāla dramma*.

The *Panchāyika dramma* appears to have been a piece of 5 boddikas. As a boddika weighs 11·2 grains, a *Panchāyika* could weigh only 56 grains. This weight tallies with that of the silver coins of the Brāhman kings of Ohind.

Though several other kinds of coins are mentioned in the aforesaid inscriptions, it is now impossible to trace their exact values inasmuch as they are not referred to in any literary or mathematical work. So they have been left untouched for further research.

The *Dilliwāls* noticed before were composed of a mixture of silver and copper in intentionally graduated proportions, of one fixed weight. The weight of this series seems to have been intended to harmonise with that of the ancient *Purāna* or punch-marked coin of 32 Ratis, about 56 grains.¹

Now let us see whether these statements are corroborated or not by the existing coins.

¹ V. Smith's Catalogue, Indian Museum, I, p. 257.

The Rāthor dynasty of Kanauj which reigned till c. 1193 A.D. temporarily got the sovereignty of a large part of Northern India under its ruler Govindachandra whose epigraphic dates range from 1114 to 1154 A.D. Shihābu-d-din defeated Jayachandra, the last king of this dynasty and took Kanauj and Benāres. This victory destroyed one of the greatest Indian monarchies and extended the Musalmān dominion into Bihār.¹ So the coins of this dynasty would illustrate the monetary system of a large part of Northern India at the time of the Muhammadan conquest. There are numerous coins of Govindachandra both in gold and copper. Gold drammās ranging in weight from 59 to 68 grains and copper drammās from 37 to 49 grains are in the cabinets of the Indian Museum. Cunningham describes only nine silver coins of Jayachand. Admitting that the legend 'Sri-Ajaya Deva' refers to Jayachandra, we see that silver or rather billon money was the chief currency of the time. Prithvirāj (c. 1175-93 A.D.), the last king of the Chauhān dynasty of Delhi and Ajmer issued silver and billon coins of the 'bull and horseman' type ranging in weight from 47 to 53 grains. These coins correspond with the *Panchāyika dramma* of 58 grai s. The 'bull and horseman' type of this dynasty was copied by the Muhammadan conquerors, the Sultāns of Delhi.

Malayavarma (1220-32) and Chāhāḍadeva (1232-60) issued billon coins of the 'bull and horseman' type ranging in weight from 49 to 54 grains. Malayavarma struck a copper coin of 44 grains and Chāhāḍa a billon piece of 57·5 grains. These too must be *Panchāyika* drammās.

The coinage of the Chandella dynasty of Bundelkhand is also, like that of Govindachandra, a copy of the coinage of Gāngeyadeva. The gold coins are exactly the same as Gāngeya's except for the names. The copper coins substitute Hanumān for Lakshmi. Both copper and gold pieces follow the same scale of weights and are drammās or subdivisions of drammās. Smith has catalogued only the gold coins.

Kirtivarma (1055-1100) *AV*—30·8 grains ($\frac{1}{2}$ dramma).

Madanavarma (1130-1165) *AV*—62·3, 15·6 grains ($\frac{1}{4}$ dramma).

Paramārdi (1165-1203) has a dramma of 61·4 grains.

Trailokyavarma (1203-1240) *AV*—62·2 grains.

The following coins have been recorded by Cunningham in his *Coins of Mediaeval India*, p. 79 :—

Kirtivarma—31 grains ($\frac{1}{2}$ dramma).

Hallakhana (1097-1110)—15 grains.

Madanavarma—*AV*—61, 15 ; *Æ*—15 grains.

The type of the coins of the Eastern Chedi dynasty was also copied from that of Gāngeyadeva with the difference

¹ Elphinstone—History of India, p. 356.

that on the reverse a rampant lion was substituted in place of the seated goddess. The larger pieces are drammās and the smaller pieces are subdivisions of drammās.

Prithvideva (1140–60) A—59, 60 grains.

Jajalladeva (1160–75) A—58, 59, 14, 13; Æ—57·5, 14 grains.

Ratnadeva (1175–90) A—60, 13; Æ—14 grains.

From the above accounts of the coinage of the several dynasties, we at once see that the coins follow two concurrent denominations, viz: (1) the dramma of 67 grains and (2) the dramma of 56 grains. The first of these originated with the Greeks. The usual type which appears to have been imitated by all the princes of Hindustān and Central India from that introduced by Gāngeyadeva (1015–1040) of the Kalachuri dynasty of Dāhala, “bears the familiar goddess (Lakshmi) on the obverse with a slight deviation from the Gupta device in that the goddess has four instead of two arms, and on the reverse is an inscription giving the king’s name in old Nāgarī”.¹ All the gold coins of the Chandellas, the Tomaras and the Rāthors follow the weight standard of their Sassanian originals which represented the Attic drachma and are all drammās or subdivisions of drammās. The second denomination is nothing but the archaic *Purāṇa* of 32 ratis which perseveringly continued to make itself felt in the monetary systems of India from the post-Vedic rulers down to the early Muḥammadan conquerors. In this connection E. Thomas says, “proceeding onwards and avoiding any possible complications due to Greek intervention, this same weight re-appears in the money of Śyāla and Sāmantadeva, the Brahmanical sovereigns of the Punjāb and Northern India in the 9th century A.D. It then runs through the entire issues of their Rajput successors, from whom it passed to Quṭbuddin and the Muḥammadan conquerors in A.D. 1191, when it had become so much of a national institution that the representative coins were known by the appropriate name of Dehli-wāls.”² But though the weight remained unaltered, the value of the coin depended upon the proportion of the baser metal in the composition of the coins. During the Rajput administration of Northern India, the device of the “bull and horseman” is almost invariably found on their copper and billon coins. This device was first introduced by the Brahman kings of Gandhārā (c. 860–950), the commonest of them being those of Spālāpatideva and Sāmantadeva. It was also adopted by the Tomara and Chauhān dynasties of Delhi, the Rāthors of Qanauj and the Rajput kings of Narwar but the old standard of weight was retained all along.

¹ C. J. Brown—Coins of India, p. 52.

² Numismata Orientalia, 1874, p. 68.

There was another class of coins current during this time. These are called Gadhaiya coins. As regards the origin of the name, Dr. G. P. Taylor in his note (*J.A.S.B.*, 1904, p. 372) says that the name was derived from the Sanskrit *Gardabhiya*, meaning "Asinine", "of the Ass-dynasty". He suggests that from his devotion to the chase of the wild ass, the Sassanian king Varahrān V (A.D. 419-438) gained the nick-name of Varahrān Gūr or Bahrām the Ass-Hunter. "Now when the coins of this king began to circulate amongst his enemies, the Hunas, they, by a very evident *jeu d'esprit*, may have dubbed the thin insignificant looking silver pieces 'Ass-money,' a name that would readily 'stick'. Later on when imitations of coins of the same Sassanian type were struck by the Hunas themselves in India, the name would fall to be translated by some Prākṛit form of the Sanskrit equivalent *Gardabhiya*: and this designation, by a process of phonetic degeneration proceeding *pari passu* with the more and more degraded workmanship with the coins themselves, finally dwindled down to Gadhaiya, the term in use to-day by the common people." Thus these coins were copies of imitations of Sassanian coins issued in Mār-wār and Rajputana by the White Huna King Toramāṇa. The first Huna imitations were thin silver pieces rudely executed from the Sassanian type. Later on, the coins became thick and dumpy and so degraded in type that it is not easy to trace their descent. A careful scrutiny, however, can discern on the obverse a rude imitation of Sassanian busts without wings to head-dress and meaningless lines and curves and on the reverse lines and dots suggesting the Sassanian fire-altar. Copper specimens have also been figured by numismatists. Both the silver and copper varieties of this coin are still known by the name of Gadhaiya Paisa in Gujarāt. Cunningham¹ identifies them with the *Shāḍboddhika* drammās of the Jaupūr inscription. In the Indian Museum collection, the silver coins range in weight from 59.7 to 74.5 grains and the copper coins from 52.2 to 65 grains.

Being secluded by impenetrable rocks, the country of Kāshmir has got to show for a long period a great uniformity of type and constancy in the matter of its currency. The 'Rājatarangini' or the Chronicle of Kāshmir by Kalhana and the *Ain-i-Akbari* of Abul Faẓl are the most important sources from which information regarding the monetary system of the country can be gathered. It is true that there are some other records but they cannot be always relied on.

Though solitary specimens of gold and silver coins of the early kings prove that both these metals were used for the coinage, gold and silver disappear from the middle of the 9th century A.D., most of the known coins being of copper. A

¹ Coins of Medieval India, p. 50.

study of the coins from the early times will easily convince any one of the fact that the Kashmirian coin-type—Obv. King standing: Rev. Goddess seated—which originated from the standard Kushan type remained unchanged until the Muḥammadan conquest of the country in the 13th century A.D. But in course of time, the type became so degraded that it is now very difficult to see any difference between the obverse and the reverse. This fact is also corroborated by the literature wherein is found very scant notice of these metals as currency and it may be concluded that neither gold nor silver formed, in Hindu times, an important part of the metallic currency. The copper coins of the period in question range in weight from 71·5 to 97·5 grains. Let us quote here the valuable data furnished by Abul Fazl.¹

“*Rop-Sasnu* is a silver coin of nine Māshās. The *Panchhu* is of copper, equal to the fourth of a dām and is called *Kasira*. One-fourth of this is the *Bārākāni*, of which again one-fourth is called *Shakri*.

4	<i>Kasiras</i>	=	1 <i>Hat</i> .
40	„	=	1 <i>Sasnu</i> .
1½	<i>Sasnu</i>	=	1 <i>Sikka</i> .
100	„	=	1 <i>Lakh</i> .”

A comparison of the above account and of the still surviving traditions with the materials supplied by Kalhana and other later writers shows that the currency of Kāshmir at this time was based on a decimal system of values. The following table with values actually used in reckoning has been worked out by Dr. Stein.²

12 Dinnāras	=	1 Dvādaśa (twelve), Bahagāni.
2 Dvādaśa	=	25 Dinnāras or 1 Panchavimsatika (twenty-five), Puntshu.
4 Panchavimsatika	=	100 Dinnāras or 1 Śata (Hundred), Hath.
10 Śata	=	1,000 Dinnāras or 1 Sahasra (Thousander), Sasun.
100 Sahasra	=	100,000 Dinnāras or 1 Lakśa (Lakh).
100 Lakśa	=	10,000,000 Dinnāras or 1 Koṭi (Crore).

In using the designations here indicated, it was usual but not necessary to add the word Dinnāra in the general sense of money in order to mark their character as monetary terms.

¹ *Āin-i-Akbari*, Blochmann's Edition, Vol. II, p. 566.

² Stein's *Rājatarangini*, Vol. II, p. 322.

The following table shows the coins which can be assumed to have represented the monetary values of the above description :—

Value in Din-nāras.	Designation.	Coins.	Equivalent Value on Abul Fazl's Estimate.
12	Dvadaśa (Bahagāni)	45 grains	1/8th dām or 1/320 Rupee
25	Panchavimśatika (Puntshu)	91 grains	1 dām.
100	Śata (Hath)	....	1 dām.
500	....	235 grains	5 dāms.
1,000	Sahasra (Sasun)	....	10 dāms.
12,500	....	73 grains	125 dāms.
100,000	Lakśa (Lakh)	....	25 Rupees.
10,000,000	Koṭi (Crore)	....	2,500 Rupees.

But for the present, we are concerned only with the Puntshus of copper, the Dvadaśa pieces being not found among the actual coins.

The 'Rājatarangini' and other later chronicles incontestably show that the above monetary terms and the system of reckoning which can be traced from Akbar's time to the present day were in use even in Kalhana's time and probably centuries earlier.

The term *Dinnāra* derived from the *Denarius* of the West is explained by Sanskrit Lexicographers as the designation of a gold coin. But the mention of this term in connection with trifling expenses and in amounts which, if calculated on such a basis, would appear to be extravagant and impossible, indicates that it was of very low value. It cannot be positively said whether the *Dinnāra* meant a separate monetary token or whether it was simply used as a subdivision of a larger figure convenient for reckoning. "If the *Dinnāra* was more than a mere abstract unit of account, it could not well have been represented by any other token than the *cowrie*. For the weight of copper which would correspond to the 25th part of a *Panchavimśatika*, viz., 91/25 or 3.64 grains is manifestly too small for a real coin."¹ No copper coin of this small weight is found in Kāshmir. The literature also shows that the *cowrie* was from very early times used as a monetary token.

Muhammadan historians have preserved a record of the fact that on the first conquest of Bengal by the Moslems, they found no metallic or other circulating media of exchange except that supplied by *cowries*. No coined money of any

¹ Dr. Stein's *Rājatarangini*, Vol. II, p. 323.

description is mentioned even in the 14th century by Ibn Batūta.

The coinage of Northern India, at and prior to the invasion of Muḥammad bin Sām, consisted of billon money. It may be seen how distinctly the *tanka* was the accepted and recognised term in India by the fact that the great Maḥmūd of Ghazni while continuing to make use of the ordinary mint designation of Dirham, in the Cufic legend of his new Lāhore coinage of Maḥmūd-pūr, admits the corresponding word टंक (or टङ्क) in the Sanskrit legend on the reverse.¹ Wilson remarks that the word also meant 'a weight of silver equal to four māshas' (=8 ratis or 14 grains). In Telegu *tanikam* is a coin formerly current but now used only in account, equal to four silver fanams.

About the *tanka* Cunningham says, "At first it was perhaps a simple weight; and after a stamp was added, it became the name of a coin. But it was applied to the silver *Kārsha* and also to the copper *Paṇa* which was also known as a "copper *tanka*".² It soon became a general term for money, and it is so used in the 'Rājatarangini' as *tangkaka* It was in common use during the whole period of Muḥammadan rule. Considering the continuous use of the name in India and the simple Indian derivation of the word, Cunningham rightly believed that the name was of Indian origin. The word 'pādika' or 'boddika' meaning one quarter of the silver 'Kārshāpana' or 'Purāṇa' or 32 ratis or 57·6 grains must weigh $57·6 \div 4$ or 14·4 grains. Therefore the quarter Kārshāpana is the well-known silver tankā. This Indian tankā corresponds exactly both in name and weight with the Persian *Δανάκη* which was one-sixth of the 'siglos' of 86·4 grains, i.e., 14·4 grains.

SOUTHERN INDIA.

One has to face numerous difficulties in the effort to deal with the monetary system of Southern India. The materials for reconstructing the political history of the country are few. More limited still are the data available to the numismatist. Though there are traditions, they rarely mention the ruler's true name or title. Dates are still more seldom found. Classification depends entirely on the fabric and type of the coins. Symbols and findspots often help scholars to assign the coins to the dynasties to which they belong, but the results so obtained have sometimes led to serious errors. There is still another peculiarity which has led numismatists to wrong

¹ Thomas—Chronicles of the Pathān Kings of Delhi. See the illustration 7.

² Cunningham—Coins of Ancient India, p. 23.

conclusions and that is the fact of conquerors incorporating on their own issues the emblems of vanquished peoples and imitating well-established types.

The 'Kanakku Saram', an ancient mathematical treatise, gives the following table of weights for gems, gold, etc. :—

A nen-mani (grain of rice in the husk)	= 1	viṣa tūkkam.
4 nel (grains of rice in the husk)	= 1	kunri.
2 kunri	= 1	mañjāḍi.
2 mañjāḍis	= 1	panatūkkam.
10 panatūkkam	= 1	kalañju. ¹

Later on, the value of the Mañjāḍi was reduced by one half and its place was usurped by its representative the copper pana. The *kunri* was probably introduced from the 'Līlāvati', the standard Sanskrit work on Mathematics.

The metric system of Southern India appears to be based on the weights of the two seeds 'Mañjāḍi' weighing on the average about 5 grains and the 'Kalañju' which was ten times the Mañjāḍi weighing up to 50 grains.

Gold and copper were the metals used almost exclusively for the coinage; of the former there were two denominations the Huna, Varāha or Pagoda (50 to 60 grains) and the fanam (5 to 6 grains) based respectively on the weights of the 'Kalañju' and the 'Mañjāḍi'. So the Huna was ten times the weight of the fanam. Copper coins were called 'āsu' of which the English corruption is 'Cash'. The rare silver coins appear to follow the gold standard.

The ancient gold coins in the shape of spherules with very minute punch-marks were designated by the name of *pon* which signifies gold in Tamil. This *pon* became *hon* or *honnū* in Canarese and *hun* in Hindustāni. They weigh about 52 grains and appear to have been derived from the Kalañju. They were current for a great length of time. They constituted a considerable portion of the plunder carried away by the armies of 'Alāuddin. Some were reminted there. Zīāuddin Barni says that they were distributed with such a lavish hand that specimens were still to be seen at Delhi. Again, Tavernier who visited India in the 17th century has figured this and other early types of southern coins.²

The derivation of the term 'Pagoda' is very obscure. It seems to be a Portuguese appellation derived from the Pyramidal temple depicted on one side of it. In Tamil the Pagoda is generally known as Varāha, probably from the fact that these coins had the figure of a Boar (Varāha) on the obverse. The *Honnū* in Canarese meant a half Pagoda. Sir W. Elliot is

¹ Sir W. Elliot's Coins of Southern India, p. 47.

² See Plate, figure 1, edition of 1680. London, published by Edward Everard.

of opinion that the normal standard coin was a piece equal to the modern half Pagoda, the Pagoda itself being the double *pon*, which ultimately became the *Varāha*. A Pagoda weighed approximately 52 grains and seems to be based on the weight of the Kalañju seeds. Regarding the development of the Pagoda, Mr. Smith¹ says, "the Pagoda (Hun or Varāha) was developed independently like the early Lydian coins, from a globule or spherule of gold. The earliest examples, of uncertain date, are either quite plain or have a punch-mark in the centre. Gradually, as in Greece, the globule was flattened and became an ordinary die-struck coin."

The curious cup-shaped thick pieces with a lotus in the centre which received the name of 'Padma-tanka' are heavier than the Pagoda, all the coins catalogued by Smith averaging in weight about 58 grains. Both Elliot and Smith connect their peculiar form with the coinage of the western Chālukya dynasty of Kalyāni. But they cannot determine their date with accuracy. Though both the series agree in shape, they do not correspond in the matter of weight. The gold coins of Jagadekamalla described by Smith in the Indian Museum Catalogue (p. 313) weigh 67·3 and 68 grains and have the figure of a temple depicted on the obverse. These coins correspond in weight with the gold Kārsha of 57 or 58 grains. Similar coins of the Kadamba dynasty of Goa whose other coins follow the Greek standard have been called 'Nishkas', the reason for which I am unable to explain, the *nishka* according to Manu being equal to four Suvarṇas or 576 grains. The Chālukyan coins are not struck to the southern scale of weights. The gold coins seem to be intended for drachmas of about 67 grains. However, it is quite evident that the influence of the drama extended even to Southern India. The silver coin of 37·8 grains of Vishnu Chitta Deva of Goa indicates that half drammās were also current and that silver coins followed the gold standard exactly.

Vishnuvardhan of the Hoyśāla dynasty of Dvārasamudra struck gold coins ranging in weight from 61·75 to 63 grains. One gold piece of 65 grains of Rāja Rāja (Cholā) has been mentioned by Elliot in his 'Coins of Southern India'. It is thus seen that the above two dynasties adopted the Greek standard and issued drammas and subdivisions of drammas.

But though all the above ruling dynasties adopted the Greek standard, they could not reject the old decimal system inasmuch as we invariably find that the gold fanams are exactly one-tenth of the weight of the larger pieces, thus retaining the proportion between the Mañjādi or paṇa and its multiple the Kalañju.

Now if the value of the Kunri or Rati introduced in the southern Tables of weights from the 'Lilāvati', a Sanskrit work on Mathematics of the 12th century, be substituted in the table given on page 13, the values of the Mañjādi and the Kalañju are found to be nearly seven and 70 grains. Though we have previously said that some dynasties adopted the Greek standard, it was only by introducing the Rati of Northern India that they accidentally arrived at these weights which exactly corresponded with those of the Greeks. The gold fanams of the Chālukya, Chola and Kākatiya dynasties are from six to seven grains in weight, *i.e.*, they still retain their metric proportion to the heavier pieces corresponding in weight to the Kalañju or 70 grains, the Greek standard being about 67 grains.

The old Arithmetical table¹ furnished by Sir W. Elliot to E. Thomas is as follows:—

2 Gunjas	= 1 Dugala (= $\frac{1}{2}$ fanam).
2 Dugalas	= 1 Chavala (= panam or fanam).
2 Chavalas	= 1 Dhāran.
2 Dhāranas	= 1 Hoṇa (= pratapa, māḍa or $\frac{1}{2}$ pagoda).
2 Hoṇas	= 1 Varāha (the Hun or Pagoda).

The Gunja or unit (= $\frac{1}{2}$ fanam) is the rati.

According to this table, the fanams weigh seven grains and the Varāha 56 grains. The Varāhas of the Chālukya dynasty ranging in weight from 55 to 58 grains, the gold Pagoda of 54½ grains of Vijjala of the Kalachuri dynasty, the gold Varāha of 52.2 grains of Devagiri all agree in weight with that of the Varāha of the above table. The gold fanams mentioned before also follow the above table.

As regards silver coins, it is well worth recording the remarks of Ferishta in connection with the plunder of Southern India by Malik Kāfūr. "It is remarkable that silver is not mentioned as having been taken during this expedition to the Carnatic and there is reason to conclude that silver was not used as a coin in that country at all in those days. No person wore bracelets, chains or rings of any other metal than gold; while all the plates in the houses of the great and in the temples were of beaten gold."² Of course we cannot accept this remark as a positive fact, because stray specimens of silver coins have been collected and described by Elliot³ who says that the currency continued to be *mainly* of gold until the Muḥammadans came to be permanently established in the South. Their preference for the rupee led to the introduction of a silver currency, without, however, displacing the gold

¹ Thomas—Pathan Kings of Delhi, p. 224.

² Briggs' Ferishta, Vol. 1, p. 375.

³ Sir W. Elliot—Coins of Southern India, p. 57.

previously in circulation. Elliot has described silver coins of the Rāja Rāja Cholā type struck in the 11th century and some specimens also from Sultānpur.

‘Kāsu’, a copper coin, is a purely Dravidian word meaning a coin. Eighty of these constituted a fanam or paṇa just as eighty cowries made a *paṇ* in Northern India. So a ‘Kāsu’ may be called a copper *cowrie*. The ‘Kāsu’ has been identified by Mr. Ellis with the Sanskrit ‘Kārsha’. He derives both the ‘Kāsu’ and the ‘Kārsha’ from the same source on the ground that the law books call a Kārsha or eighty ratis of copper a paṇa of Kārshapana.

Copper coins of various types are to be met with even now in the bazars but they cannot be classified in any systematic way.

“The conclusion to be drawn from the foregoing details”, says Sir Walter Elliot, “is that the monetary system of Southern India is of indigenous origin, based on rude seminal and testaceous exponents of value which have been exchanged for definite metallic counters, regulated by artificial skill, their original names and the numerous changes and variations in which exhibit a certain affinity indicative of their common origin”.¹

PARESH NĀTH BHATTĀCHĀRYA.

¹ *Ibid.*, p. 60.

303 Bibliography of Indian Coins. (2)

BY C. R. SINGHAL.

(*Numismatic Supplement, No. XLI for 1928, Article No. 282.*)

Supplement.

PART I—(NON-MUHAMMADAN COINS).

(1) INDO-GREEK.

- 869 Dikshit, K. N. JBBRAS, XXIV, p 382

A note on some rare coins (Greek Kings of Bactria and India) in the Cabinet of the Bombay Branch of the Royal Asiatic Society.

- 870 Martin, F. C. NS, XL, (274), 1926-27

A find of Indo-Greek Hemidrachms in Bajaur.

- 871 ————— NS, XLII, (296), 1929

Coins exhibited at the Annual Meeting of the Numismatic Society of India at Benares in January, 1929.

(2) INDO-PARTHIAN.

- 872 ————— NS, XLII, (296), 1929

Coins exhibited at the Annual Meeting of the Numismatic Society of India at Benares in January, 1929.

(3) KUSHAN.

- 873 ————— NS, XLII, (296), 1929

Coins exhibited at the Annual Meeting of the Numismatic Society of India at Benares in January, 1929.

(4) GUPTA.

- 874 Dikshit, K. N. ASR, 1923-24, p 124

An early dated silver coin of Kumāragupta.

- 875 Vats, Madho Sarup. ASR, 1926-27, p 233

A gold coin of Samudragupta of the "Battle-axe type".

(5) NARWAR.

- 876 Dayāl, Prayāg. NS, XL, (268), 1926-27

Narwar coins.

(6) ĀNDHRA.

- 877 Krishnamāchārlu, C. R. ASR, 1924-25, p 158

Some Āndhra coins from the Guntur District.

46 N. *Journal of the Asiatic Society of Bengal* [N.S., XXVI,

878 **Kundangar, K. G.** NS, XLII, (285), 1929
Andhra coins in the Lord Irwin Agricultural Museum, Kolhāpur.

(7) MEDIEVAL INDIA.

879 **Dayāl, Prayāg.** NS, XLI, (278), 1928
Treasure Trove find of 16,448 Electron coins in Banda District of the United Provinces.

(8) BURMA.

880 **Temple, R. C.** IA, LVI, p 205
Notes on currency and coinage among the Burmese.

881 ————— IA, LVII, pp 11, 37, 90, 125, 149
Notes on currency and coinage among the Burmese.

882 ————— IA, LX, p 70
On certain specimens of Former Currency in Burma.

(9) SOUTH INDIAN.

883 **Ayyangar, R. S. R.** IA, LVI, p 186
Some South Indian gold coins.

(10) CHĀLUKYAS.

884 **Streenivās, T.** RADN, 1925-26, p 21
Silver coins of the Western Chālukyas.

(11) MISCELLANEOUS.

885 **Barnett, L. D.** IA, LVIII, p 20
Mount Meru on Ancient Indian coins.

886 **Chakravarti, S. K.** IHQ, VI, p 529
The State in relation to coinage in Ancient India.

887 **Dayāl, Prayāg.** NS, XLI, (277), 1928
Sitārāmi gold coins or medals.

888 **Master, A.** NS, XL, (271), 1926-27
The Arthasāstra on coins and minting.

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The evolution of Indian coinage before the Christian Era.

890 **Sarkār, A. K.** IHQ, VII, p 689
Coins and weights in Ancient India.

PART II—(MUHAMMADAN COINS).

(1) SULTĀNS OF DEHLI.

- 891 **Antāni, Ratilāl, M.** NS, XL, (265), 1926-27
 Coins exhibited at the Annual Meeting of the Numismatic Society of India held at Āgra on January 2, 1927.
- 892 **Hodivālā, S. H.** NS, XLII, (290), 1929
Shashkāni or Shashgāni ?
- 893 **Martin, F. C.** NS, XLII, (296), 1929
 Coins exhibited at the Annual Meeting of the Numismatic Society of India at Benāres in January, 1929.
- 894 **Prasād, Durgā.** NS, XLII, (286), 1929
 A silver coin struck in Nepal in the name of 'Alāu-d-dīn Muḥammad Shāh Khiljī.
- 895 **Stapleton, H. E.** NS, XLII, (283), 1929
 A find of 182 silver coins of Kings of the Ḥusaini and Śūri dynasties from Rāipārā, Dacca District.
- 896 **Thorburn, P.** NS, XLII, (284), 1929
 Notes on a few rare Indian coins.

(2) BENGAL.

- 897 **Stapleton, H. E.** NS, XLII, (283), 1929
 A find of 182 silver coins of Kings of the Ḥusaini and Śūri dynasties from Rāipārā, Dacca District.
- 898 **Thorburn, P.** NS, XLII, (284), 1929
 Notes on a few rare Indian coins.

(3) GUJARAT.

- 899 **Hodivālā, S. H.** JBBRAS, II, (N.S.), p 19
 The Unpublished coins of the Gujarāt Saltanat.
- 900 ——— NS, XL, (276), 1926-27
 The 'Shāh-i-Hind' coins.
- 901 **Master, A.** NS, XL, (270), 1926-27
 Sultāns of Gujarāt.
- 902 **Singhal, C. R.** IA, LVII, p 215
 New types of copper coins of the Sultāns of Gujarāt.
- 903 ——— NS, XLII, (288), 1929
 Coins of Nāsir Shāh of Gujarāt.

(4) MISCELLANEOUS (MUHAMMADAN).

- 904 **Hodivālā, S. H.** NS, XLII, (289), 1929
The Unassigned coins of Jalāl Shāh Sultāni.

- 905 **Ismāil, Muḥammad.** IA, LIII, p 264
Some copper coins of Southern India.

(5) AKBAR.

- 906 **Kotwāl, C. E.** NS, XL, (272), 1926-27
Copper Dāms of Jalālu-d-dīn Akbar.

(6) JAHĀNGĪR.

- 907 **Hodivālā, S. H.** NS, XLI, (281), 1928
The Chronology of the Zodiacal coins.

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The coins bearing the name of Nūr Jahān.

- 910 **Whitehead, R. B.** NC, IX, (5th Series), p 1
The Portrait coins of Jahāngīr.

(7) AURANGZEB.

- 911 **Tārāporevālā, V. D. B.** NS, XLII, (287), 1929
Aurangzeb's Rupee of Dāru-s-surūr-i-Burhānpūr.

(8) AHMAD SHAH.

- 912 **Hodivālā, S. H.** NS, XLII, (294), 1929
The Kashmir coins of Aḥmad Shāh.

(9) 'ĀLAMGĪR II.

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The Kashmir coins of 'Ālamgīr II.

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The Multān coins of 'Ālamgīr II.

(10) SHĀH 'ĀLAM II.

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Rupees of Shāh 'Ālam II, Ujhāni—Āsafābād and 'Abdullanagar-Pihāni.

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coins'.
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- 919 Singhal, C. R.** NS, XLI, (279), 1928
Some more coins of the Post-Mughal Period from Ahmadābad.
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- 921 Whitehead, R. B.** NC, VI, (5th Series), p 361
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Some notable coins of the Mughal Emperors of India, Part III.

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(I) NATIVE STATES.

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Notes on a few rare Indian coins.

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304. A RARE KUSHAN COIN.

N. Wt. 220. 6; Size 7.

Coin of Vasu (? Vasudeva Kushan), a King in North-Western India (? and Sīstān), about (?) 200 A.D.

Type: Kushan King at altar and throned goddess; Name Vasu in Brahmi characters vertically under left arm of King.

The degraded Greek legend (PA) ONANO in left margin of obv. before the king is a new feature in this specimen. (Pl. 4. 1.)

P. S. TARĀPORE.

305. A RARE BAHMANI RUPEE.

Ghiyāsuddin. Abul Muẓaffar Ghiyāsud-dunyā waddin Tehamtan Shāh Sultān.

AR. Wt. 147; Size 1.05.

Mint Aḥsanābād; Date, 799 A.H.

Obverse.

Reverse in square area.

المستوثاق بالله
[!] لعنان ابو المظفر
غيث الدنيا والدين

تيمتى شاه
السلطانين
السلطان

Right Margin, احسانباد
Lower Margin, ٧٩٩

No description of any coin of this King has been published. Ghiyāsuddin is one of the four Bahamani Kings whose coins have not been discovered. I may here bring to the notice of readers that the reverse in square area reads تيمتى شاه السلطانين السلطان. Tehamtan Shāh seems to me to be quite clear. There is no doubt regarding its legibility. It cannot be 'Bahaman Shāh' as the Nuqtas on the 1st and 2nd ت are distinct. Tehamtan in Persian means Hercules. Rustam was also known as Tehamtan, i.e., the Persian Hercules. It will not be surprising if in future the genealogy of the Bahamani Kings is traced back to Sāssānian Kings. The originator of the House of Bahamani, Ḥasan, is said to have been a descendant of Bahman Shāh.

Tehamtan and Bahman Shāh are both Persian names and this also supports the view of Colonel Haig rejecting the old theory of Ferishta concerning the assumption of the sobriquet of Gangu Bahamani by Ḥasan. (Vide N.S., No. XXXIX, article 261.) (Pl. 4. 2.)

P. S. TARĀPORE.


306. SOME RARE MUGHAL COINS.

(1) *Jalāluddin Akbar.*

AR. Wt. 172; Size 1·1.

Mint Gwalior; dated 966 A.H.

Obverse

Within square
Kalima and Mint Mark 
(Swastika) and in the margin
names of four Khalifs.

Reverse

اکبر بادشاہ غازی

م محمد

جلال الدین

Margin left ابو المعظفر

Upper السلطان

Right العادل

Lower ضرب گوالیر

Silver coins of Sūri Kings from this Mint are known. Copper coins of Akbar also have been published but no silver coins have hitherto been discovered. It is interesting to learn that Akbar conquered the fortress of Gwāliar in 966 A.H. and this coin is of the same year. (Pl. 4. 3.)

(2) *Shāh Jchān I.*

AE. Wt. 318; Size '9.

Mint Lakhnau; Date 1041 A.H. (Pl. 4. 4.)

Obverse on Floral background. Reverse on Floral background.

غازی
بادشاہ
چہرہ
شاہ

۱۰۴۱
سنہ
لکھنؤ
ضرب

There is one copper coin of Shāh Jchān of Lakhnau Mint in the Indian Museum without date and of a different variety.

(3) *Aurangzeb 'Ālamgir.* (Pl. 4. 5.)

AV. Wt. 173; Size '8.

Mint Chināpatan; Date 1114 A.H. 47 R.

Obverse.

عالم کبر
۱۱۱۴
اورنگ زیب
س
زد چو مهر مذہب
سکہ
در جہان

Reverse.

مانوس
میمنت
سنہ ۴۷ جلوس
ضرب
چینا پتن

This is an unpublished Mohar of Aurangzeb of this Mint.

(4) AR. Wt. 177; Size '85. (Pl. 4. 6.)

Mint Poonamali? (Tamil. Poovirumdamali or Pundamali); Date 1112 A.H. 44 R.

Obverse.

عالم گیر

۱۱۱۲

رنگ زیب

ســـــــــــــــــا

چو بدر منیر

(sic) ســـــــــــــــــا کہ

Reverse.

مانوس

میمنت

سنہ ۴۴ جلوس

ضرب

پونملے

If the reading of the Mint is correct, this coin adds one more to the list of Mughal Mints.

Poonamali or Pūnamali is a place about thirteen miles from Madras and has an old Fort now in ruins. The style of the coin also resembles South Indian Coins of Aurangzeb.

(5) *Jchāndār Shāh.*

AE. Wt. 105; Size '75.

Mint Farkhunda Bunyād (Haidarābād); Date (11) 24. 'Ahd. R. (Pl. 4. 7.)

Obverse.

جہاندار

ســـــــــــــــــا

۲۴

فلوس (۱۱)

Reverse.

بنیاد احد

ســـــــــــــــــا

فوخندہ

(6) *Farrukhsiyar.*

AR. Wt. 175. Size '9.

Mint. Bidrūr? Date 1130 A.H. 7 R. (Pl. 4. 8.)

Obverse.

فروخ شیر

۱۱۳۰

ســـــــــــــــــا

فضل حق باد

Reverse.

مانوس

میمنت

سنہ ۷ جلوس

ضرب

بیدرور

This is a new Mint and similar to that of No. 8.

(7) A.R. Wt. 106; Size 7.

Mint Farkhunda Bunyād (Haidarābād; Date 1125. (Pl. 5. 9.)

Obverse.

فَرخ سَبَر
س

۲۵

فلوس ۱۱

Reverse.

بنیاد (حد)

س

ضرب فرخنده

(8) *Muhammad Shāh.*

A.R. Wt. 175; Size 9.

Mint Bidrūr? Date 4 R. (Pl. 5. 10.)

Obverse.

محمد شاه
شاه غاز
ک
صبار

Reverse.

مانوس

میمنت

سنه ۴ جلوس

ضرب

بیدر (ر)

This is a new Mint, same as that of No. 6.

(9) *Aḥmad Shāh.*

A.R. Wt. 40; Size 55.

Mint Katak; Date missing.

Obverse.

شاه (در)
شاه

Reverse.

میمنت

جلوس

Quarter Rupee of Katak Mint. The Mint-name is cut but the coin bears the Katak mint-mark. ۳ (Pl. 5. 11.)

۳

(10) *‘Ālamgir II.*

A.R. Wt. 172; Size 85.

Mint Mukhtal; Date 1169 A.H. (Pl. 5. 12.)

Obverse.

عالم گیر ثانی
بزر زد سکه صاحب
قرانی

Reverse.

مانوس

میمنت

جلوس ضرب

}

مکھتل ۱۱۶۹

This is a new Mughal Mint. Mukhtal is in Maḥbūbnagar District, H.E.H. the Nizām's Dominions.

(11) AR. Wt. 176 ; Size '9.

Mint Naṣratābād ; Date 11XX A.H. 7 R.

Obverse.

۱۱ عالم گیر
 بادشاہ غاز
 سکہ مبار

Reverse.

مانوس
 میمنت
 سنہ ۷ جلوس
 ضرب
 نصر ایا (د)
 (ت)

This is an unpublished Mint of this king. (Pl. 5. 13.)

(12) SHĀH 'ĀLAM II.

AV. Wt. 165 ; Size '8.

Mint Muṣṭafābād ; Date 1185 A.H. 12 R.

Obverse.

شاه عالم
 بادشاہ غاز
 سکہ مبار ۱۱۸۵

Reverse.

مصطفی آباد
 ضرب
 جلوس میمنت مانوس
 سنہ ۱۲

No gold coin of this Mint has been published. (Pl. 5. 14.)

(13) AR. Wt. 172 ; Size '85.

Mint Dalipnagar ? Date 6 R. (Pl. 5. 15.)

Obverse.

فضل الہ حامی
 سکہ زد بر
 هفت

Reverse.

سنہ ۶ جلوس
 ضرب
 دلیپ نگر

If the reading of the Mint is correct, this is a new Mint.

(14) AE. Wt. 239 ; Size '95.

Mint. Ravishnagar Sagar ? (Pl. 5. 16.)

Obverse.

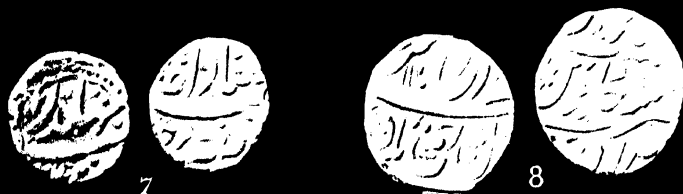
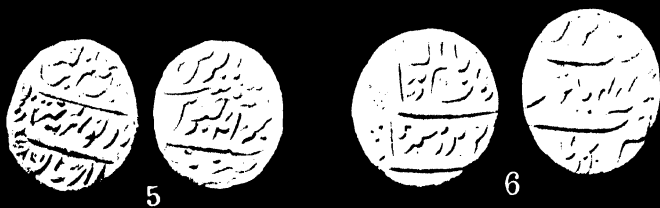
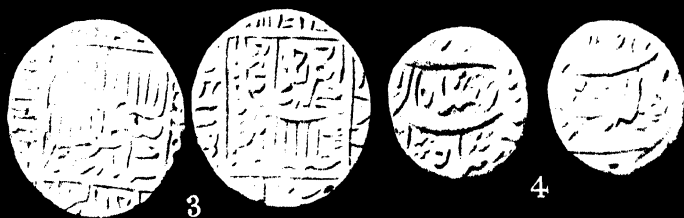
شاه عالم باد
 حامی دین

Reverse.

مانوس
 میمنت
 سنہ ۵۵ جلوس

I am very much indebted to Prof. S. H. Hodivālā, Rāi Sāheb R. R. Chāndā of Indian Museum, Calcutta, and also to Messrs. G. Yazdāni, T. Streenivas and Khwāja Aḥmad of the Haidarābād Museum for their valuable assistance in describing and identifying some of the above coins.

P. S. TĀRĀPORE.





9



10



11



12



13



14



15



16



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(Published separately, September, 1932.)

JOURNAL AND PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL.

New Series.

Vol. XXVIII, 1932, No. 1.



CALCUTTA :

PRINTED AT THE BAPTIST MISSION PRESS.

PUBLISHED BY THE ASIATIC SOCIETY OF BENGAL, 1, PARK STREET.

Issued November, 1932.

47 UNITS.

Officers and Members of Council.

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1933.

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JOURNAL
OF THE
ASIATIC SOCIETY OF BENGAL
New Series
Vol. XXVIII.—1932



ARTICLE NO. I.

Studies on Rigvedic Deities—Astronomical and Meteorological.

By EKENDRANATH GHOSH.

INTRODUCTION.

The present work is a collection of twenty-one papers which were read in the monthly meetings of the Asiatic Society of Bengal in the course of two years or so. These papers, originally without any arrangement, are now published together, and are arranged according to the subject matter.

The numerous deities invoked in the hymns of the Rigveda comprise celestial, atmospheric, and terrestrial objects of various forms. Even common articles of daily use and various abstract matters (as mind, soul, etc.) have been personified as deities. In this present series of articles, we are concerned only with deities whose physical nature can be interpreted from the astronomical and meteorological points of view.

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I. HEAVEN (DIV), FIRMAMENT (ANTARIKṢA), AND EARTH (PṚTHIVĪ).

1. *Worlds in general.*

Throughout the ten maṇḍalas of the Rīgveda, we have numerous references to different worlds, under different names, either individually or in groups.

First, let me enumerate the different worlds as they are mentioned in groups.

(1) Dyāus (Dyāvā, Div), Antarikṣa and Pṛthivī (I. 115. 1 ; II. 12. 2, with parvatas : III. 22. 2, with water and herbs : III. 54. 19, with the sun : VII. 35. 5 ; X. 59. 7 ; etc.). There are references to objects pertaining to them in several places (VI. 22. 8 ; VIII. 6. 15 ; X. 65. 9).

(2) Div, Rodasī and pṛthivī (wide) Antarikṣa (II. 15. 2 ; X. 88. 3).

(3) Div, At (occurring as Adbhyaḥ, from the sky according to Sāyaṇa) and Pṛthivī (II. 38. 11).

(4) Div, Pṛthivī (Antarikṣa, according to the Nighaṇṭu) and Bhūmī (V. 85. 4).

(5) Div, Apa and Pṛthivī (X. 88. 2).

(6) Div, Jma (Pṛthivī—Nighaṇṭu, I. 1), Apām (sky) (VI. 52. 15).

(7) Div, Rta, Pṛthivī (VI. 41. 1).

(8) Div, Āpa and Kṣiti (III. 13. 4).

(9) Dyāvā Kṣāmā (heaven and earth) and pṛthivī (wide) Antarikṣa (III. 8. 8). They have also been used in plural for the objects connected with them (VIII. 70. 4).

(10) Rodasī (Dyāvā pṛthivī) and Antarikṣa (I. 73. 8 ; V. 85. 3 ; VII. 12. 24 ; X. 139. 2).

(11) Rodasī and Madhya (middle region) (X. 55. 3).

(12) Rodasī and Div (sky as loosely applied) (I. 33. 5).

(13) Rodasī, Rṣva (highly placed) Nāka (Div or Āditya according to Nighaṇṭu, I. 4) and Nakṣatra (VII. 86. 1).

(14) Rocanā, Dyāvābhūmī, Antarikṣāḥ and svarṇaram Pṛthivī (X. 65. 4).

(15) Parama Vyoma (VI. 8. 2) which is said to be inhabited (IV. 40. 5).

These regions have been further subdivided, as we shall see below :—

(1) Three Antarikṣas, three Rajasas, three Rocanas, three Divas, and three Pṛthivīs (IV. 53. 5).

(2) Three Mothers (earths), three Āpas, and Tridiva (three Divas) (III. 56. 5).

(3) Three Divas (I. 35. 6 ; VII. 101. 4).

(4) Three upper Rocanas (luminous regions or bodies) (III. 56. 8).

(5) Three Bhūmī (in dual), that is, three Dyāvabhūmīs (VIII. 41. 9).

(6) Three Pṛthivīs (I. 34. 8) ; also tridhātu (three-regioned?) Pṛthivīs.

Next, we are told something about the creation of the worlds.

(1) Div (heaven) arose from the head, Antarikṣa (sky) from the navel, and Bhūmī (earth) from the feet of Puruṣa (X. 90. 14).

(2) 'Ka' (Who?—Brahman) is the Creator of the Div, Āp, and Pṛthivī (X. 121. 9). He placed Div and Pṛthivī in position (X. 121. 1).

(3) Brahman made Div and Pṛthivī firm (in position) : Svar and Nāka are supported by him ; he arranged for water in the sky (X. 121. 5).

(4) Viśvakarman spread the extensive Div after having created the earth (X. 81. 2).

(5) The Creator created the sun, moon, Div, Pṛthivī, and Antarikṣa in proper time (X. 190. 3).

Lastly, we are informed of some general facts about them.

(1) There are thirty-three Devas in all : Eleven in heaven, eleven on earth, and eleven in the sky (I. 139. 11).

(2) The two Rocanas (luminous regions) are placed above the sun and Āpa (sky) is situated below it (III. 22. 3).

(3) Indra by Śacī (ability) holds Div and Pṛthivī all round, as a wheel is held by an axle (X. 89. 4).

(4) Pūṣan remains in the high Div, Soma on the pṛthivī Antarikṣa (sky) (Pṛthivyām here is better and more reasonably made to qualify Antarikṣa and signifying vast in extent) (II. 40. 4).

(5) The Sun has been requested to protect from (the disturbances arising in) Div, Vāyu from (those of) Antarikṣa, and Fire from (those of) Pṛthivī (X. 158. 1).

(6) The Soma goes round the high regions of Pṛthivī from Div and Antarikṣa (IX. 63. 27).

(7) The Dawn spreads over Div and large Antarikṣa (IV. 52. 7).

All the passages above referred to lead one to the idea that the Rigvedic sages recognised three well-defined worlds, viz. heaven, sky, and earth. A fourth region is also mentioned as *parama Vyoma*—a space at a great distance.

The heaven (*Div*), as its name implies, is characterised by luminous bodies. It is the highest of the three worlds. *Nāka* indicates the highest region of the heaven beset with stars

(I. 34. 8 ; III. 2. 12 ; etc.) ; it may have been referred to as the higher region of the sky (I. 19. 6), where it is said that the Devas live on the top of the *Nāka* in the luminous region ; it might have indicated the boundary line between the heaven and sky.

The heaven and earth have been mentioned or addressed many times under the names of *dyāvāprthivī*, *dyāvākṣāmā*, *dyāvābhūmī*, *rodasī*, and *rajasī*.

The sky or firmament has usually been mentioned as *antarikṣa* (literally meaning 'the region below the stars'). It has also been named *rajas*, *madhya* (middle region), *āpa* (region of waters), and sometimes *prthivī* (extensive region). Sometimes the word 'div' has been loosely used for it. It is distinctly the world (or rather the space) between the heaven above and earth below.

The earth is usually named *prthivī*, but is also called by the names *bhūmī*, *kṣāmā*, and *jmā*.

These three regions have been further subdivided, usually into three each. It is rather difficult to form an idea of the extent of these subdivisions from the meagre materials we have at our disposal.

There are three divisions of the heaven. *Nāka* is the highest region with stars, according to the majority of the sages. Further, there is mention of two (other ?) luminous regions of the heaven above the sun. Even a superficial observer of the heaven, after having looked at it for several nights, will be able to distinguish three strata of the heaven, the lowest one with the moon, the middle one with the planets, and the topmost one with fixed stars. The sun's place, according to several passages, is also in heaven.

I shall consider this again, in connection with heaven.

Sky has a similar threefold division. Here, with still more uncertainty, we take the highest region with the path of the sun (I. 35. 11), the middle clear region and the lowest cloudy region. Here, too, we have mention of three *antarikṣas* and three *rajasas* in the same passage (IV. 53. 5). This can only be reconciled if we think of three clear upper layers and three cloudy lower layers.

Lastly, we find the same threefold division of the earth. These may doubtfully be taken to be the mountainous regions, the plains and the watery tracts.

2. Individual Worlds.

As we have still much to learn of the three individual worlds, I shall discuss them one after another.

(a) HEAVEN.—This world has been addressed as *div*, *svar*, *nāka*, and *trīdiv*.

Heaven has been addressed as the father (I. 89. 8). It is regarded as the grandfather of the Aśvins (I. 184. 1; X. 61. 4) and of Indra-Varuṇa (III. 38. 5), and as the father of the Aśvins (I. 117. 12; etc.), Agni (III. 1. 6, 9; III. 31. 9), the sun (IV. 15. 6; X. 37. 1), the Maruts (X. 71. 2), Parjanya (VII. 102. 1), the dawn (IV. 30. 8; etc. many times), and the night (X. 127. 8). Again, Indra (VIII. 36. 4; VIII. 63. 2) and Soma and Pūṣan (II. 40. 1) are regarded as the fathers (originators) of the heaven.

Aśvins (VI. 62. 1; X. 143. 3) and the Maruts (II. 36. 2) are the leaders of heaven. Maruts, again, are the guides of the heavenly path (V. 54. 10). Indra is the lord of heaven (VIII. 13. 8, 12; X. 111. 3). Heaven is made to tremble by Indra (I. 61. 14; IV. 22. 3) and by the Maruts (I. 37. 6).

Heaven is the abode of gods and other objects. We find mention of Agni (III. 27. 12), Aśvins (I. 30. 9; I. 180. 10; IV. 43. 5), Indra (V. 74. 1; etc.), Rbhus (III. 33. 1; IV. 36. 1), the dead Fathers (X. 15. 14), Pūṣan (II. 40. 4), Maruts (V. 87. 3), Mitra-Varuṇa (X. 65. 7), Rudra (I. 114. 5; I. 122. 1; VII. 46. 3), Vṛhaspati (X. 67. 10), Vena (IX. 85. 10), Soma (IX. 97. 13; IX. 85. 9; etc.) and the sun (IX. 113. 10, referred to as the 'root' or basis of the worlds). Indra is said to have disposed the 'month' on heaven (X. 138. 6). The sun rises in heaven (I. 50. 11; VII. 63. 4), his disc remains in heaven (V. 27. 6) and his chariot moves in heaven (X. 138. 3). The circular path of the sun, consisting of twelve divisions, lies in the heaven (I. 164. 11). The eye of the sun appears in heaven after an eclipse (V. 40. 8). The three regions of heaven are laid in Varuṇa, who made the golden sun swing in heaven for benefit (VII. 87. 5). Saramā, the bitch, came to the Paṇis from heaven above (X. 108. 5). There are eagles in heaven (X. 92. 6; X. 94. 5), evidently referring to the constellation Aquila. Night and dawn come, one before another, in heaven and earth, and travel in them (I. 62. 8). The light of dawn arises in heaven (VI. 64. 2). Dawn spreads over heaven (IV. 52. 7).

Again, heaven is the place of water. Extensive tracts of water are located in heaven (IX. 113. 8). Three streams of heavenly water flow away in three directions (VII. 101. 4). These evidently refer to three branches of the milky way. The cloud (*varṣabha*) arises in heaven (VII. 36. 3). Water is formed in heaven (I. 33. 10; IV. 57. 5; VI. 13. 1) by the gods (X. 114. 1). Rainwater is held in heaven by Prajāpati (I. 164. 25). The Maruts also hold water in heaven (VI. 66. 11). Mitra-Varuṇa are the lords of water in heaven and earth (VII. 64. 1). Indra (I. 54. 7; I. 56. 5; VI. 44. 21), Maruts (V. 57. 1; V. 83. 6), Soma (IX. 108. 10) and Mitra-Varuṇa (V. 63. 6; V. 83. 6) help in downpour of rain from heaven. The Visva-devas milk the lying one (that is, cloud) in heaven (III. 57. 2).

All these passages may refer to the milky way (celestial waters) or they may really indicate the sky, the word *div* being loosely applied.

Now let us consider the position of heaven and how it is held in its place. Heaven is distant from us (VI. 40. 5) and is placed above the sea (sky, according to Sāyana) (VIII. 97. 5). Heaven is held by itself (V. 32. 10) and is supported by Indra without a pole (*avaṃśe*) (II. 15. 2). Indra held it so firmly that it may not fall down (II. 17. 2. 5; II. 27. 8; III. 30. 9). He supports it high above the earth (X. 55. 1). The sun also holds the heaven without support (X. 149. 1) and is regarded as the supporter of heaven (IV. 13. 5). He has placed it higher up (IV. 31. 15). Soma, again, is said to support it like a pillar (IX. 74. 2) and she is regarded as acting as a pillar (IX. 87. 2). In one place (VI. 72. 2), Indra and Soma are regarded as having held the heaven by a support (sky, according to Sāyana). Lastly, Agni (II. 11. 5), Mitra (III. 59. 1), Mitra-Varuṇa (V. 62. 3), Varuṇa (VIII. 42. 1), and Rbhus (X. 66. 10) are also said to support the heaven.

There are other characteristics of heaven. (1) It is constantly bright (IX. 113. 7), with bright regions (IX. 113. 9). It is called luminous (*devī*) (V. 32. 10). It is decorated with stars (II. 2. 5; II. 34. 2; VIII. 55. 2; X. 68. 11; X. 111. 7). There is mention of meteors in heaven (X. 68. 4). It is recognised by Navahs (Adityas according to Sāyana) (II. 4. 6). (2) There are two gates (I. 48. 15), a staircase (I. 52. 9) and the sea (X. 98. 10) in heaven. (3) Heaven is imperishable (IX. 113. 7), undecayable (IX. 113. 7). There is every kind of pleasure in heaven and all desires are fulfilled there (IX. 113. 10). (4) Vaivasvata is the king of heaven (IX. 113. 8).

Lastly, we may consider briefly the divisions of heaven already alluded to. We are informed of the highest (*uttama*), middle (*madhyama*) and lower (*avama*) regions of heaven (V. 60. 6). There are three Divas and three Nākas in heaven (IX. 113. 9). The three Divas are said to hold the luminaries (*rocanas*) (II. 27. 9) the regions of which are again three in number (I. 105. 5; VIII. 10. 1; VIII. 82. 4; IX. 17. 5). Nāka is the highest region of heaven (IX. 73. 4; IX. 85. 10; X. 130. 2); it is the back of heaven (III. 2. 12). The wide, high Nāka was held up by Viṣṇu (VII. 99. 2). It is provided with stars (I. 68. 5; VI. 49. 12). It is the abode of gods (I. 19. 6; I. 164. 50; VII. 58. 1; X. 90. 16; etc.). The Rocanas (luminaries) shine in heaven (I. 6. 1; I. 81. 5; VI. 7. 7; IX. 37. 3; etc.). They are said to form the third region of heaven (VI. 44. 23; IX. 75. 2). Commencing from below, we may take the three strata of luminaries (those of the sun, moon, and planets) as forming the third (lowest) region, the regions of the stars (divided into three) as forming the highest region and an intermediate second region of the heaven.

(b) EARTH.—The earth has been mentioned or addressed as *prthivī* in most of the passages, *kṣiti* (I. 65. 3 ; V. 35. 2 ; VI. 46. 7 ; etc.), *prthivī* (X. 31. 9, the word elsewhere signifying 'spacious' and used for qualifying various regions), *bhūmi* (III. 30. 9 ; V. 85. 4 ; IX. 61. 10 ; etc., the word being also used for ground in II. 11. 7 ; IV. 26. 2 ; IV. 57. 8 ; VI. 47. 20), *avanī* (II. 13. 7, also used for river, as in I. 190. 7 ; V. 85. 6 ; etc.) and *gālū* (earth or ground, V. 32. 10). The word *kṣiti* in the plural has been used to mean people on earth (V. 32. 10 ; V. 36. 6 ; VI. 1. 5).

Earth is regarded as mother (V. 72. 2 ; VIII. 103. 2 ; X. 62. 3 ; etc.). Indra (VIII. 36. 4) and Soma and Pūṣan (II. 40. 1) are the fathers or originators of the earth. Indra (II. 15. 2 ; VIII. 89. 5) and Indra and Soma together (VI. 72. 2) make her spread (that is, become vast in extent).

Indra made the shaking earth firm and the trembling mountains quiet (II. 12. 2). This probably refers to an earthquake. Again, the earth trembles from fear of Indra (I. 61. 14 ; IV. 22. 3) and Maruts (I. 37. 6). Indra shook the earth and produced curls (clouds, according to Sāyana) in the heaven (VIII. 14. 5).

Downpour of rain occurs on the earth through the agency of Indra (VI. 44. 21), Maruts (VI. 54. 8) with the help of clouds (I. 39. 9 ; I. 164. 47 ; V. 83. 4) and Soma (IX. 8. 8 ; IX. 96. 3). Lightening appears on earth in a downward direction (I. 168. 8). Vāyu travels on earth by scattering dust on all sides (X. 168. 1).

Earth is supported by Indra (I. 67. 1 ; II. 15. 2 ; II. 17. 5 ; X. 89. 4), Mitra (III. 59. 1), Mitra-Varuṇa (V. 62. 3) and Soma (IX. 86. 29 ; IX. 100. 9 ; etc.). Indra fixed the earth in her own place (III. 30. 9). Varuṇa holds the eastern side of the earth (VII. 99. 2).

Varuṇa is said to know the extent of the earth (VIII. 42. 1) and he measured her extent through the sun (V. 85. 5). The sun holds all the worlds. He gave origin to the earth and heaven, after having measured them with good fingers (IV. 54. 8).

As regards the position of earth, we find it mentioned that it is placed at the base of (that is, below) the sky (II. 2. 3).

She is the abode of water (V. 66. 5 ; X. 73. 9 ; etc.), herbs (III. 22. 2 ; X. 27. 23 ; X. 73. 9) and trees (I. 39. 3 ; III. 8. 3). She holds the mountains (V. 84. 1) and the trees on the ground (V. 84. 3). She is the abode of men (I. 22. 15 ; VII. 59. 3 ; VI. 1. 5 ; VII. 100. 4). Men travel in different directions on earth by land (X. 56. 7).

There are several other characteristics : it is wide (I. 131. 1 ; III. 30. 9), unlimited (III. 30. 9), strong (III. 30. 9), giver of comfort (III. 30. 9), and is sustainer of all (II. 17. 5).

There are eight directions of the earth (I. 35. 8).

There are three regions of the earth (VII. 104. 11); they are disposed in six ways (VII. 87. 5; Sāyana takes them to mean six seasons).

Again, in Puruṣa-sūkta (X. 90. 1), we are told that Puruṣa (the Divine being) has one thousand heads, a thousand eyes, and a thousand feet. He extends over a space of ten fingers after having fully spread over the earth.

Lastly, there are passages in the Rigveda which tend to suggest that the Rigvedic sages had idea of the axial rotation and orbital motion of the earth. Although several Vedic scholars had already tried to produce evidences on this matter, Pandit Tārakeśvar Bhaṭṭāchārya discussed it fully in Bengali in the periodical, *Bhāratavarṣa*, Bengali era 1326, Vol. 7, Part I, p. 729. The evidences are quite convincing. As the paper is out of reach beyond Bengal, the subject is briefly dealt with here. First, on the rotation of the earth. The earth is revolving (*uruci*) (VII. 35. 3). The sun, having fixed the earth so that she may not fall down, has put her in her place and is making her revolve (VI. 8. 3). The heaven and earth is revolving together (VIII. 6. 5). The earth is revolving with day on the eastern half and with night on the other (VI. 9. 1). Again we are told that what is the upper region becomes lower and what is the lower region becomes upper; the moon, sun, and the other heavenly bodies seem to be in motion to us, as (a fixed place) to one on wheel (that is, moving in a carriage) (I. 164. 19). The dawn is making the sun visible on the eastern half of the earth (I. 92. 1); she is giving birth to the sun on the east (VII. 78. 3). These two passages evidently indicate that the rising of the sun is the work of somebody else. There is a long passage in Taitt. Br. (3. 4. 6.), which distinctly points to the fixity of the sun: The sun never sets, nor he ever rises. When he appears to set, he terminates the day in that region and does the opposite, that is, gives rise to night in that region and day in the other; again, when he seems to rise in the morning, he gives rise to day in that region and night in the other. Next, on the orbital motion of the earth. The earth is movable and is capable of travelling (V. 84. 2). The sun is making the earth travel (IV. 56. 3). The sun is making the heavy earth move with his fingers (VI. 54. 4). The earth's motion is not irregular (I. 160. 4). The sun, by his attraction, has placed the earth in space (without support) and is making her move (X. 149. 1). The long, eastward and heavenly path of the earth extends on the east (X. 110. 4).

(c) HEAVEN AND EARTH.—These are mentioned or addressed in a large number of passages under the names of *dyāvāprthivī* (in five hymns dedicated to them and elsewhere), *dyāvākṣāmā*, *dyāvābhūmī*, *rodasī*, and *rajasī*. They have also been referred to as Father and Mother (I. 121. 5; I. 161. 10; X. 54. 3) and have also been qualified as such (V. 43. 2; VI. 70. 6; X. 65. 8).

The term *rodasī* has also been used to qualify *dyāvāprthivī* (II. 1. 15; VII. 5. 4) and *dyāvābhūmī* (X. 12. 4) showing its significance. The term, however, has also been applied to the earth only (as in *Rodasī* and *Div*—V. 61. 12; VI. 48. 6; IX. 74. 2, if we do not accept 'div' to mean the sky). In another place (VIII. 70. 5), *rodasī* might have meant the sky. Lastly, there is a phrase *prṣṇi suretas vṛṣabha* and the word *dhenū* (I. 160. 3) which seem to refer to heaven and earth respectively. The phrase evidently means spotted (starry) downpourer with good germs (one capable of fertilising by rain).

We have references to objects relating to heaven and earth (X. 32. 2).

The gods are regarded as their sons (I. 185. 4).

They are paired (I. 159. 4; III. 54. 7) and are like two sisters (I. 159. 4; I. 185. 5; III. 54. 7). They have a common origin (I. 159. 4).

Indra begot the heaven and earth together (X. 54. 3). He spread over them all round (II. 15. 2). He follows them as he does the circle of *Etaśa* (VIII. 6. 38). Again, he made them tremble (VIII. 97. 14).

Heaven and earth are held fast by *Varuṇa* with a prop (VIII. 41. 10), separately or firmly (*viśkabhita*) (VI. 70. 1). The Sun is said to hold them with undecaying supports (I. 160. 4). *Soma* is also said to support them (IX. 101. 15). Again the sky is placed between them for their support (III. 38. 3). Again, they are said to be without support (IV. 56. 3) and fixed, immovable, and footless (I. 185. 2). The dawn remains on one side of heaven and earth (VII. 80. 1).

Indra and *Varuṇa* are said to have measured their extent after having anointed them together (III. 38. 3).

They are said to remain together (united ?) (I. 185. 5; III. 38. 3; III. 55. 20; X. 89. 13) and have the same boundary (I. 185. 5). They enclose everything between them (VI. 70. 1; IX. 81. 5). Again, they are said to remain separate (I. 159. 4) and not to cling to each other (I. 160. 2; VI. 70. 2). They are separated equally all round (*ante*) and remain in the fixed point (*dhruva pade*) at a distance (III. 54. 7). They revolve like a wheel as the day and night (I. 185. 1). The sun (I. 160. 4) and *Aśvins* (IV. 34. 9) make them separate. The sun moves between them (I. 35. 9). The moon appears between them (III. 61. 4).

They are the abodes of gods (I. 185. 6).

They are intimately connected with water, as shown by numerous epithets bestowed upon them, viz. *bhūri retasā* (VI. 70. 1), *bhūri dhāre* (VI. 70. 2), *payasvatī* (VI. 70. 2), *kṣīra prasavinī* (III. 6. 4), *ghṛtasnu* (X. 12. 4), *ghṛtavṛdhā* (VI. 70. 4), *madhudugha* (VI. 70. 5), etc.

They have other characteristics assigned to them. Thus

they are youthful (III. 54. 9) and ever remain so (I. 185. 5); they are wide in extent (I. 185. 6; I. 160. 2; IV. 56. 3; etc.), limitless (I. 185. 7) and deep (IV. 56. 3).

(d) SKY OR FIRMAMENT.—The sky is referred to as *Antarikṣa* (signifying the region below the stars) in a large number of passages, but is also addressed by the name of *Antar* (I. 105. 1), *Abudhna* (rootless) (VIII. 77. 5), *Rajas* (I. 50. 7; I. 56. 5; I. 62. 5; etc.; also used in other senses elsewhere), *Āpa* and *Nabhas* (VII. 97. 6; IX. 71. 1; X. 30. 9; etc.). The words *Div* and *Nāka* have also been loosely applied to it.

Rbhus are considered as the leaders of the sky (I. 110. 6).

Indra (III. 30. 9; III. 49. 4) and Soma (VI. 47. 4) are said to hold the sky.

The sun (VII. 45. 1), dawn (VII. 75. 3; X. 95. 17) and Indra (I. 51. 2; II. 15. 2; VII. 98. 3) are said to fill the sky with light. Again Indra (II. 12. 2) and Varuṇa know the extent of the sky through the sun (V. 85. 5).

The sky is the abode of the gods (I. 48. 12; III. 6. 8; V. 53. 8; IX. 5. 2; etc.). Vāyu spreads in the sky (I. 161. 14; X. 168. 3). The sun's path is on the sky (I. 35. 11). Pūṣan's boat travels in the sky (VI. 58. 3) and that of Aśvins (I. 116. 3) as well.

The sky is blue (VII. 97. 6), wide in extent (I. 91. 22; II. 15. 2; etc.), spacious (III. 55. 191; IV. 52. 7; etc.), bright (VIII. 14. 7) and decorated with stars (III. 55. 19). Rain-water collects in the sky (IX. 71. 1; X. 30. 9) and clouds spread in the sky (V. 83. 3).

3. Remarks.

Considering the various facts regarding *Div*, *Antarikṣa*, and *Prthivī* and the different characteristics assigned to them, we may take them to represent the heaven, sky, and earth—the three regions of the universe. The sages also recognised a fourth very distant space under the name of *parama Vyoma*.

In this connection we must consider the views of V. G. Rele, as set forth in his work entitled 'The Vedic Gods as figures of Biology'. This scholar regards the heaven, sky, and earth as the three portions of the human Central Nervous System. He cites numerous passages from the Rigveda, mostly irrelevant, as evidences in favour of his view. I shall select the more important ones and see how far they actually support his views.

Heaven is identified with the brain, or rather the two cerebral hemispheres together. These are two large bodies with a deep cleft between them. They are comparable to the kernel of walnut. He tries to prove the dual nature of the heaven and earth (that is, there are two heavens and two earths) from various passages (I. 159. 4; I. 160. 2, 5; III. 38. 3; III. 55. 20; VIII. 37. 4; X. 89. 4; etc.) all of which, however,

simply mean 'heaven and earth' and not 'two heavens' or 'two earths'.

Earth is identified with the spinal cord, the long cylindrical body which occupies the canal of the back bone. He cites a few passages (I. 24. 7; III. 38. 3; X. 81. 4; etc.) as a proof that the earth of the Rigvedic sages is not a circular body but a long narrow rod-like structure, like the spinal cord. The first passage has a phrase *vanasya stupa* which he takes to mean 'the stem of a tree', but, considering the context, *vana* really means 'rays' (Nighaṇṭu, I. 8). A portion of the second passage means 'from what wood or tree were heaven and earth fashioned!' It does not necessarily mean that the earth was rod-like in shape. Even if we take it to be so, we should also consider the heaven of the same shape. In the third passage, he takes *rodasī* as two earths and *mātrā* as a 'measuring rod', but *rodasī* actually means heaven and earth and if *mātrā* be an indication of the 'lengthwise expanse of the earth' according to his interpretation, then both the heaven and earth would be rod-like.

Lastly, the sky is identified with the middle portion of the central nervous system. It is a short pyramidal body lying in an oblique direction beneath the cerebral hemispheres connecting them together with the spinal cord. He cites a few passages (II. 15. 2; IV. 56. 3) to indicate that the sky is rafterless, but they refer to the heaven and heaven and earth respectively and not to the sky. Another passage (I. 56. 5), referred to as an indication that the sky 'is located on the top of the posts that support the heaven', has nothing to suggest this import. He also cites another passage (VII. 99. 3) interpreting it that Viṣṇu fixes the earth to the heaven by pegs. *Mayukhālā* which he takes to be pegs, mean sun's rays (Nighaṇṭu, I. 8). In much later times it is made to represent, evidently secondarily, the pin of a sun-dial.

Taking these facts into consideration, I cannot accept his views. The various characteristics of the three regions, as we find them in the Rigveda, seem to be quite clear and to show that they are really the heaven, sky, and earth.

II. VISIBLE PORTION OF THE CELESTIAL SPHERE.

DITI AND ADITI.

The word *diti* occurs three times. Once (VII. 15. 12) she is simply invoked for wealth. In two other places Diti and Aditi are prayed to together. In one passage (V. 62. 8) we are informed that in the morning at sunrise Mitra and Varuṇa look at Diti and Aditi in their golden chariot with golden spokes. In the other (IV. 2. 11) Agni is invoked to grant Diti (perhaps meaning a 'giver') and protect from Aditi (perhaps signifying a 'non-giver').

Diti is also mentioned with Aditi in Vājasaneyī Saṃhitā (15. 22) and Atharvaveda (XV. 18. 4; XVI. 6. 7). We also get the mention of Diti's sons in the Atharvaveda (VII. 7. 1) as the Daityas, who were regarded as the enemies of the gods.

The word *aditi* occurs about one hundred and forty times in the R̥gveda. The term seems to refer to the goddess Aditi in more than hundred passages, where she has been invoked or incidentally mentioned either alone or with other deities. In the remaining passages the term has been used to qualify or mean some other deities. Thus in several passages it is made to qualify fire (as boundless or without limit or division) (I. 94. 5; II. 1. 11; IV. 1. 20; VIII. 19. 14) and Vivasvat (the sun) in one (VII. 9. 3). Again, Soma (the moon or the soma plant) has been addressed as Aditi (VIII. 48. 2). The intoxication due to the drinking of soma juice has been said to be *aditi* (very intense) (V. 44. 11). Again, we have the phrase *aditi grāvāna* (V. 11. 5), which probably means a vast (widespread) cloud; probably the same significance is to be held in the phrase *aditeḥ vṛṣṇeḥ* (from the vast cloud) (X. 11. 1). Lastly, it seems to have been used for the earth and cow. In several passages (VII. 88. 7; IX. 26. 1; 69. 3; 71. 5; 74. 3, 5) we get the phrases *aditeḥ upastha*, *aditeḥ upasthāt* and *aditeḥ upasthe*, signifying 'on or over Aditi'. Sāyaṇa takes them to mean the earth (or the ground), but in all of them we may take *aditi* to mean the heaven as well. In another passage (V. 59. 8) we have the clause *mimātu dyaunḥ aditi vitaye naḥ*—'let the boundless heaven bring forth (rains) for our nutrition'. In one place (IX. 96. 15) the term has been made to mean the 'cow' by Sāyaṇa, when Soma (the moon or the soma juice) has been compared with the refreshing *payah* (the white light or the milk) drawn from Aditi (the heaven or the cow).

The goddess Aditi has been invoked alone more than sixty-five times, and some forty times with other deities in various combinations. Thus she was invoked, some thirty-eight times with Mitra and Varuṇa, some twenty-seven times with Dyau

and the Earth, some twenty times with *Sindhu* (the river Indus), some twelve times with Aryaman and Indra, nine times with Bhaga, six times with Agni and Maruts, four times with Pūṣan, Viṣṇu and Savitar, three times with Soma and Vāyu, twice with Rudras, Vasus and Brahmanaspati, and once with several other deities.

In the various passages devoted to Aditi, we find her qualified with a number of attributes. She has been called a goddess (*devī*) (V. 69. 3 : VII. 38. 4 : VIII. 18. 4 : X. 10. 2 : X. 36. 3 ; etc.), huge or vast in extent (*mahatī*) (I. 24. 1, 2 : VIII. 25. 3), non-moving (that is, fixed and unchangeable) (*anarvā*) (II. 40. 6 : VII. 40. 4 : X. 92. 14), sinless (unchangeable) (*anāga*) (I. 24. 15 : I. 162. 22), inaccessible (not liable to be injured—*Sāyana*) (*anchasa*) (X. 63. 10), the mother (VIII. 25. 3), one with good sons (III. 4. 11), one with princely sons (II. 27. 7), all-spreading (*sarvatātī*, *ururyacā*) (X. 100. 1 : V. 46. 6), well-invoked (*suhavā*) (VII. 40. 4), provided with a good house (dome) (*suśarmā*) (X. 63. 10), without a second (unique) (VIII. 18. 6), provided with brightness (luminous bodies) (*ptāvatī*) (VIII. 25. 3) and growing (or moving) with brightness (or brilliant bodies) (*ptārvdha*) (VII. 82. 10).

There are several other characteristics of Aditi. She is quick-moving (IV. 3. 8). She has been described as one not going backwards (X. 92. 14), where she has been prayed to with all the women (celestial goddesses). She has been called *adri-varhā*, pre-eminent or widespread like a cloud (X. 63. 3). She has, again, been represented as the heaven, the sky (*antahrikṣa*), the mother, father and son, all the gods and the five places (of the Panjab) (I. 89. 10), evidently indicating that she practically pervades or covers everything ; she represents birth (probably the origin of the celestial beings) and is the cause of the birth (I. 89. 10). Again (I. 196. 6), she is called the sister, whereas the heaven is designated as the father, the earth as the mother and the Soma (the moon), as the brother. Aditi and the Adityas (IV. 25. 3) have been begged for their brilliancy. Aditi protects the beasts both in the day and night.

There are several other facts regarding Aditi. The sage Śunaḥsepa said that may Agni release him in the vast Aditi, so that he may see the father and mother (heaven and earth) (I. 24. 1). According to the sage Dīrghatamas (I. 152. 6), Mitra and Varuṇa, travelling together, guard Aditi. Indra once spread over Aditi with his supremacy (VII. 18. 8). In one passage (X. 63. 2) the Visve Devas were invoked to come down on the earth from Aditi and the sky above. Dawn has been addressed as the mother of the gods and as the brilliancy of Aditi (I. 113. 19).

Lastly, we may consider a few other important passages regarding Aditi. First, we are told (X. 5. 7) that Agni is *asat* (non-existent—that is, without physical existence) and *sat*

(existent); he is placed in the highest space (*parama vyoma*) above Aditi, above Dakṣa. Secondly, in X. 72 we have a concise account of the creation of the universe. Brahmanaspati, like a blacksmith, created the Devas (luminaries) with blast and smelting. The existent came out of the non-existent before the time of the Devas (X. 72. 2). In the age of the Devas (that is, when they were created), the existent came out of the non-existent. Then *āśā* originated. Above it (arose) *uttānapad* (one with the legs spreading upwards) (X. 72. 3). From *uttānapad* arose *bhu*. From *bhu* arose *āsā*. From *aditi* arose *dakṣa*; again arose *aditi* from *dakṣa* (X. 72. 4). Oh *Dakṣa*! Aditi, who is your daughter, gave birth to (the Devas). The glorious Devas, held by indestructible ties, originated from her (X. 72. 5). The Devas, who remained in that space well bound down, threw hot (*tīra*) particles, as if dancing like us (X. 72. 6). The Devas, who by stirring (agitation) pervaded the worlds, brought out the sun concealed in the ocean (X. 72. 7). Of the eight sons, born from the body of Aditi, she took away seven to the heavens and cast away *Mārtaṇḍa* (X. 72. 8). In the early age Aditi went with her seven sons and delivered *Mārtaṇḍa* for birth and death (X. 72. 9).

I shall now consider the sons of Aditi or Ādityas, as they have an important bearing on the determination of the physical nature of the deity. The following deities have been distinctly mentioned as the sons of Aditi. Mitra and Varuṇa (VI. 67. 4; VIII. 25. 3; X. 36. 3; X. 132. 6; X. 185. 3; etc.), Aryaman (VII. 60. 5; VIII. 47. 9), Bhaga (VII. 41. 2), Indra (IV. 18. 4, 8) and Soma (IX. 69. 3). In one passage (X. 72. 8), we are informed that eight sons were born from Aditi. The number of Ādityas has been differently stated in the various hymns of the Rigveda, the number going up to twelve in the Puranas. The lowest number is found in II. 27, where we have the names of Mitra, Aryaman, Bhaga, Varuṇa, Dakṣa, and Aṁśa. The number has also been given as seven (IX. 114. 3), but no names are cited. Scattered throughout the Rigveda, we find the names of the following deities designated as Ādityas. Savitar (about eleven times), Mitra (about nine times), Varuṇa (about eight times), Aryaman (about eight times), Vasus (about eight times), Rudras (about six times), Indra (about five times), Maruts (about five times), Viṣṇu (about three times), Bhaga (about three times), Āsvins (twice), R̥bhus (twice), Brahmanaspati (twice), Dakṣa (once), Aṁśa (once), Agni (once), Vāyu (once), Pūṣan (once), Sūrya (once), Bṛhaspati (once), Apaṇ (once), Parvata (?) (once), and Viśvadevas (once).

The lowest number of Ādityas in the Brāhmaṇas is given as seven, as in Śatapatha Brāhmaṇa (3. 1-3. 3) and Tāṇḍya Brāhmaṇa (23. 15. 3). Again, we have the number eight in Śatapatha Brāhmaṇa (3. 1. 3. 3), Tāṇḍya Brāhmaṇa (24. 12. 4), and Taittiriya Brāhmaṇa (2. 6. 19. 1-2). Śatapatha Brāhmaṇa

and Tāṇḍya Brāhmaṇa repeat the sense of the passage X. 72. 8 of the Rigveda. The names given are Mitra, Varuṇa, Dhātār, Aryaman, Bhaga, Aṃśa, Candra (in Tāṇḍya Brāhmaṇa) or Indra (in Taitt. Br.), and Vivasvat. Lastly, in Śatapatha Brāhmaṇa (11. 6. 3. 8), the twelve months of the year are considered as Ādityas.

Again, in Śatapatha Brāhmaṇa (2. 2. 3. 9) the sun (as an Āditya) has been said to comprise all the (five) seasons : as he rises, it is (represents) spring : as he is higher up, it is summer : it is rainy season in the midday : it is autumn in the afternoon ; and it is *hemanta* as he sets.

In Talavakāropaniṣad Brāhmaṇa (4. 5. 1-3), we have a list of deities, evidently the Ādityas, with the parts of the day and night over which they preside. Savitar in the morning ; Viṣṇu before sunrise ; Indra (Maghavendra Vaikuṇṭha) in the forenoon ; Bhaga in the midday ; Ugradeva (Rudra) in the afternoon ; Yama in the reddening (of the sky) in the sunset ; Soma in the darkness (evening) ; Pitar at night, entering (or pervading) persons in dreams and the beasts by water ; Bhava in the depth of night (midnight), Angiras (Agnihotra) at the end of the night after Bhava, and Bhṛgu at the beginning of the (next) day. Again, in another place (4. 10. 10), we are told that Indra (Vaimṛdha) is at the sunrise, Savitar after sunrise, Mitra at the forenoon, Indra (Vaikuṇṭha) at midday, Śarva Ugradeva (Rudra) in the afternoon with reddening (of the sky) and Prajāpati at the sunset. In Bṛhadāraṇyaka Upaniṣad (3. 9. 5), the twelve months have been considered as the Ādityas of the *saṃvatsara* (year).

In Mahābhārata, we have the mention of twelve Ādityas, but the names enumerated are somewhat different in different places, so that the number of Ādityas becomes more than twelve in all. Taking them together, we find that the following deities were considered as Ādityas : Dhātṛ, Mitra, Varuṇa, Aryaman, Indra (Śakra), Aṃśa, Bhaga, Vivasvat, Pūṣan, Savitr, Tvaṣṭṛ, Viṣṇu, Parjanya, and Manu.

In Viṣṇupurāṇa (1. 15. 90) the eight Ādityas have been thus enumerated : Viṣṇu, Śakra, Vivasvat, Savitr, Mitra, Varuṇa, Aṃśa, and Bhaga. This, no doubt, refers to the earlier counting. In many Purāṇas we are told (as already indicated in Bṛhadāraṇyaka Upaniṣad) that the twelve Ādityas make their appearance in the twelve months (of a year), one in each month. They are thus enumerated : Vivasvat, Aryaman, Pūṣan, Śakra, Tvaṣṭṛ, Savitr, Bhaga, Dhātṛ, Vidhātṛ, Varuṇa, Mitra, Śakra, and Ūrukrama.

In Nirukta (1. 15. 9) we are told that Aditi is all-in-all (*svaram*) and that she is the heaven and the sky. Again, the term *aditi* is also a synonym of the earth (2. 5. 1), speech (*vāc*) (2. 23. 1), cow (3. 9. 11), and *Dyāvāprthivī* (heaven and earth) (3. 21. 7) ; she has also been called the mother of the Devas

(4. 22. 1 ; 11. 22. 1), the daughter of Dakṣa (11. 23. 3) and Agni (II. 23. 5).

As regards the significance of the two terms, *diti* is derived from the root *dit*, to bind, to divide or to cut. Hence it means one which is bounded, limited or divided ; whereas *aditi* means boundless, unlimited or intact.

Let us now consider the views of the oriental scholars. Roth considers Diti and Aditi of V. 62. 8 as 'the eternal and the perishable' and Muir as 'the entire aggregate of visible nature'. Sāyaṇa has considered them as the indivisible earth and the separate creatures on it. In one other place (IV. 2. 11) where the two terms are mentioned together, they do not seem to refer to the two goddesses in question, but rather means a 'giver' and 'non-giver' as explained by Sāyaṇa and followed by Macdonell (Vedic Mythology, p. 123). Roth interprets them as 'wealth and penury'. As regards Aditi, Max Müller regards her to represent 'the visible infinite, visible by the naked eye, the endless expanse, beyond the earth, beyond the clouds, beyond the sky (Rigveda, translation, I. p. 230). Roth at first considered her to mean 'inviolability, imperishableness' and later on as the goddess of 'eternity', the principle which sustains the Adityas, or imperishable celestial light. Pischel and Hardy take her to represent the earth. Colinet considers her as the female counterpart of Dyaus. Macdonell discusses at length (Vedic Mythology, p. 122) the nature of the goddess Aditi. He considers the two characteristics, or at least the only prominent ones, of Aditi are her motherhood and 'her power of releasing from the bonds of physical suffering and moral guilt' (also accepted by Wallis and Oldenberg). He suggests that the term *aditi* in the phrases *aditeḥ patrīḥ*, sons of Aditi, might have originally meant 'freedom' and ultimately led to the idea of motherhood. He cites, as examples, the terms *śavasah*, son of might, and *śacīpati*, lord of might. I am, however, more inclined to think that the idea was originally that of a vast boundless space on which the stars and other luminous bodies were distributed and hence taken to be her sons, or that the wide distribution of the celestial bodies on the firmament led to the idea of a vast boundless space on which they are scattered or held together. As regards the second characteristic, namely the power of releasing from the bonds of physical suffering and moral guilt, we do not find that the attribute is solely confined to Aditi, for the same attribute, more or less in the same form, has also been assigned to many other deities who have been invoked for such relief.

I shall now express my own views of the physical nature of Diti and Aditi—as Vedic deities, and omitting the other significances in which the terms have been used.

First, regarding Aditi. We know that a number of stars form an asterism or *nakṣatra* ; and twenty-seven (formerly

twenty-eight) naksatras comprise the Zodiacal circle of 360°. This circle extends north and south of the ecliptic for a few degrees. In the ancient astronomical treatises, viz., Āra-jyotiṣa (AJ¹), Yājuṣa-jyotiṣa (YJ), Pitāmaha-siddhānta (PS), Vrddhavāsiṣṭha-siddhānta (VS), Brahma-siddhānta (BS), Soma-siddhānta (SS), and Sūrya-siddhānta (SuS), we find the names of certain deities (most of which have been included in the list of Ādityas) connected with the asterisms. In the first two treatises we find the names of deities (or one or more syllables of their names) used in place of the usual names of the asterisms, or else the deities have been called the presiding gods of the asterisms. In the other works we find the names of the deities in place of the asterisms. We append below two lists, one of the deities with the asterisms arranged in an alphabetic order and another of the asterisms with their presiding gods in a serial order.

1. *List of Deities with their connected asterisms.*

Agni, lord of Kṛttikā (Junction star Alcyon): AJ. 25, YJ. 32 (as lord of the asterism); VS. 8. 7 (Agni in place of the name Kṛttikā); SS. 4. 6. 7.; 4. 6. 34 (Āgneya in place of the name Kṛttikā); SuS. 8. 18.

Aja Ekapāt, lord of Pūrvaprosthapada (or Pūrvabhādrapada) (Junction star α Pegasi): AJ. 9 (Aja for the asterism), 14 (the abbreviation *ja* for the asterism), 27 (as the presiding deity of the asterism); YJ. 10, 18, 34; PS. (Aja for the asterism); VS. 8. 8 (Ajapada for the asterism).

Aditi or Āditya, lady or lord of Purnarvasu (Junction star Pollux): AJ. 25, YJ. 32 (as lord of the asterism); VS. 8. 18 (called Aditi); SS. 4. 6. 35 (called Āditya); SuS. 8. 19.

Aryaman, lord of Uttaraphālguni (Junction star β Leonis): AJ. 14 (abbreviation *mā* for the asterism), 27 (as the presiding deity); YJ. 18, 32; PS. (called Aryamā); VS. 8. 18 (called Aryamā).

Aśvins, lord of Aśvinī (Junction star α , β or γ Arietis): AJ. 14 (the abbreviation *jyau* for the asterism), 27 (as the presiding deity of the asterism); YJ. 18, 34; VS. 8. 19 (*Dasra* in place of the name of the asterism).

Ahīrbudhna, lord of Uttarabhādrapada (Junction star α Andromedæ or β Pegasi): AJ. 14 (the abbreviation *hir* for the asterism), 27 (as the presiding deity); YJ. 18, 34; PS. (asterism called Ahīrbudhna); VS. 8. 18 (asterism called Ahīrbudhna).

Āpaḥ, lord of Pūrvāṣādhā (Junction star δ Sagittarius): AJ. 9 (asterism named *jalāḥ*), 14 (the abbreviation *pa* for the asterism), 26 (as the presiding deity); YJ. 10, 18, 33; PS.

¹ Abbreviations used in the list of Deities.

(asterism Āpa) ; BS. 2-178 ; SS. 4. 6. 4. 12 ; SuS. 8. 21 (called Āpa in all the three works).

Indra, lord of Jyēsthā (Junction star Antares) : AJ. 26, YJ. 33 (as the presiding deity) ; PS. (asterism called Indra).

Indrāgni, lord of Viśākhā (Junction star α Libera) : A.J. 26, YJ. 33 (as the presiding deity of the asterism).

Tvaṣṭr, lord of Citrā (Junction star Spica) : AJ. 9 (asterism called Tvaṣṭā), 26 (as the presiding deity) : YJ. 10, 33.

Dhātṛ (called Yama by Somākara, the commentator on Yājusañyotiṣa), lord of Uttaraphālgunī (Junction star β Leonis) : AJ. 9 ; YJ. 10.

Nirti, lord of Mūlā (Junction star λ Scorpionis) : AJ. 26, YJ. 33 (as the presiding deity).

Pitaraḥ, lords of Maghā (Junction star Regulus) : AJ. 25 ; YJ. 32 (as the presiding deity of the asterism) : VS. 8. 21 : SS. 4. 6. 34 : SuS. 8. 18 (called Pitṛ in the last three treatises).

Pūṣan, lord of Revatī (Junction star ξ Piscium) : AJ. 27 (as the presiding deity) : YJ. 34 ; SS., SuS. Pausṇa.

Prajāpati (or Kaḥ), lord of Rohiṇī (Junction star Aldebaran) : AJ. 25 (as the presiding deity) : YJ. 32 : VS. 8. 11 : BS. 2. 176 : SS. 4. 6. 11 : SuS. 8. 20 (asterism named Prajāpati in the last four works).

Bhaga, lord of Pūrva-phālgunī (Junction star δ Leonis) : AJ. 14 (*ga* as the abbreviation), 25 ; YJ. 18, 32 (as the presiding deity) ; PS. (asterism called Bhāgya) : VS. 8. 8, 18 (asterism called Bhaga).

Mitra, lord of Anurādhā (Junction star β or δ Scorpionis) : AJ. 9 (asterism called Mitra), 26 (as the presiding deity) ; PS. (asterism called Maitra) ; SS. 4. 6 : SuS. 8. 18 (also called Maitra in the last two works).

Yama, lord of Bharāṇī (Junction star 35 Arietis) : AJ. 27 (as the presiding deity) : YJ. 34 ; SS. 4. 6. 9 (called Yamalā).

Rudra (or Bhava), lord of Ādrā (Junction star α Orionis) : AJ. 9 (called Bhava), 25 (Rudra as the presiding deity) : YJ. 10, 32 ; SS. 4. 6. 7 (called Rudra).

Varuṇa, lord of Śatabhiṣā (Junction star λ Aquarii) : AJ. 27 (as the presiding deity) : YJ. 38 : PS. : VS. 2. 174 (Vāruṇa in the last two works).

Vasus, lords of Dhanīṣṭhā (Junction star α or β Delphini) : AJ. 9 (called Vasu), 27 (as the presiding deity) : YJ. 10, 34.

Vāyu, lord of Svātī (Junction star Arcturus) : AJ. 26 (as the presiding deity) : YJ. 33 : BS. 2. 167.

Viṣṇu, lord of Śravaṇā (Junction star Altair) : AJ. 27 (as the presiding deity) : YJ. 34 : BS. 2. 179, 180 (the asterism or perhaps Altair is called Viṣṇutārā).

Viśve Devāḥ, lords of Uttarāśādhā (Junction star ϕ or τ Sagittarius) : AJ. 14 (*śve* as the abbreviation of the name), 26 (as the presiding deity) : YJ. 18, 33 : PS. (called Vaiśvadeva) : SS. 4. 6. 4 (called Vaiśva).

Bṛhaspati, lord of Pūṣyā (Junction star δ Canceri) : AJ. 25 (the presiding deity) : YJ. 32 : SS. 4. 6. 34 : SuS. 8. 18 (Bārhaspatya in SS. and SuS.).

Savitr, lord of Hastā (Junction star γ or δ Corvi) : AJ. 26 (the presiding deity) : YJ. 33.

Soma, lord of Mrgaśirā (Junction star λ Orionis) : AJ. 26, YJ. 32 (the presiding deity).

2. *List of the Nakṣatras with their presiding Deities.*

(1) Aśvinī [also named Dasra (VS)] : abbreviation *jyau* (AJ., YJ.). Presiding deities the Aśvins.

(2) Bharanī (also called Yamalā). Presiding deity Yama.

(3) Kṛttikā (also called Agni, Āgneya). Pr. d. Agni.

(4) Rohiṇī (also called Prajāpati). Pr. d. Prajāpati (Kaḥ).

(5) Mrgaśirā. Pr. d. Soma.

(6) Ārdrā (also called Bhava, Rudra). Pr. d. Rudra.

(7) Punarvasu (also called Aditi, Āditya). Pr. d. Aditi (or Āditya).

(8) Pūṣyā (also called Bārhaspatya). Pr. d. Bṛhaspati.

(9) Aśleṣā (also called Sarpa).

(10) Maghā (also called Pitar). Pr. d. Pitarah.

(11) Pūrva-phālgunī (also called Bhaga, Bhāgya, *ga* as abbreviation). Pr. d. Bhaga.

(12) Uttara-phālgunī (also called Dhātār in AJ. and YJ., Aryamā). Pr. d. Aryaman.

(13) Hastā. Pr. d. Savitr.

(14) Citrā. Pr. d. Tvastṛ.

(15) Svāti. Pr. d. Vāyu.

(16) Viśākhā. Pr. d. Indrāgni.

(17) Anurādhā (also called Mitra, Maitra). Pr. d. Mitra.

(18) Jyesthā (also called Indra). Pr. d. Indra.

(19) Mūlā. Pr. d. Nirṛti.

(20) Pūrvāṣāḍhā (also called Āpa, Jala, *pa* as an abbreviation). Pr. d. Āpa.

(21) Uttarāṣāḍhā (also called Vaiśva, Vaiśva Deva ; *śve* as an abbreviation). Pr. d. Viśve Devāh.

(22) Śravanā. Pr. d. Viṣṇu.

(23) Dhanisthā (also called Vasu). Pr. d. Vasus.

(24) Śatabhiṣā (also called Vāruṇa). Pr. d. Varuṇa.

(25) Pūrva-bhādrapada (also called Aja, Ajapada), *ja* as an abbreviation). Pr. d. Aja Ekapād.

(26) Uttara-bhādrapada (also called Ahirbudhna, Āhirbudhna, *hir* as an abbreviation). Pr. d. Ahirbudhna.

(27) Revatī (also called Pauṣṇa). Pr. d. Pūṣan.

From the above two lists we may conclude that most of the asterisms at an early period were known by names assigned to what became their presiding deities. Further, the signi-

fiance of the names of and the various attributes assigned to these deities may be supposed to have been derived from the various physical phenomena observed by the Vedic sages and correlated with the rising of groups of stars or asterisms, perhaps at dawn. As more and more of the asterisms came to be recognized, more and more deities were created and named after the physical phenomena noticed with their risings. Hence we may reasonably suppose that the Ādityas, or most of them at least, represented a group of stars or asterisms, including as well the large luminous bodies, as the sun and the moon. We may thus account for the gradual increase of their number, even exceeding twelve and reaching nearly the number of the nakṣatras. Thus, the Ādityas are ultimately to be taken as the luminous bodies of the heaven. Considering that some of the Ādityas recognized at an early period were called the sons of Aditi and others, by their name, signify (luminous) bodies situated on (or pertaining to) Aditi, we may take Aditi to represent the celestial dome (sphere) studded with stars. Lastly, taking Diti as the counterpart of Aditi, that the Ādityas are all confined to the Zodiac and the northern hemisphere and that the Ādityas are opposed (as enemies) to the Daityas, we may take *Aditi to represent the northern hemisphere and the Zodiacal signs* (the part of the heaven which could be seen from the latitude of the North-West India throughout the year) and *Diti to represent the limited, visible portion of the southern hemisphere of the heaven*.

All the characteristics of Aditi can be well interpreted if we take this view. Her quick and not-going-backward movement indicates the apparent rotation of the celestial sphere from east to west round the axis passing through the poles. The direction of the movement never changes.

In conclusion, we may consider a few passages dealing with the creation of the sun and other luminous celestial bodies. Here the term *aditi* seems to have been used in different senses, but perhaps still keeping to the idea of vastness (of space). We shall, here, try with reserve to interpret the meanings of the words used in this connection. The origin of the existent (*sat*) from the non-existent (*asat*) seems to be the first step in the creation. It perhaps points to the early philosophical conception of the origin of the universe. *Āśā* seems to represent the wide unfathomable space (perhaps beyond human conception). *Uttānapād* is certainly not the same of the Pauranic or later literature and identified with β Ursæ minoris by Roth (in his *Wörterbuch*): it probably represents (so far as we can surmise from the significance of the term) the higher layers of space now less boundless (or more circumscribed). *Bhū* seems to indicate a space the existence of which can be well conceived in our mind (probably corresponding to the *ether* of modern science). The second *āśā*, arising from *bhū*,

seems to indicate a space which can be determined by our senses. It seems to be identical with the first *aditi* from which *dakṣa* had his origin. So far as we can interpret the significance of *dakṣa*, it seems to indicate the space where energy (perhaps in the form of luminous particles) has appeared. The second *aditi* arising from *dakṣa*, seems to be the one widely recognized by the Vedic sages; she has given origin to the *Ādityas* (the luminous bodies). Here we should take her to represent the whole celestial sphere (as the counterpart *Diti* does not seem to have been taken into account). We further see that the Paurāṇik *Dakṣa* takes the place of the second *aditi* and represents the celestial sphere, his daughters representing the lunar mansions and the constellations of the northern hemisphere. A scholar named Binod Bihari Ray, in his work 'The Universe', has interpreted these passages in the light of the five physical elements—earth (*kṣīṭi*), water (*ap*), fire (*tejah*), air (*marut*), and sky (*vyoma*). He takes *āśā* for the sky, *uttānapad* for air, *bhū* for *tejah*, *dakṣa* for water, and *aditi* for earth (solid matter). Although the idea of creation from the five physical elements was in vogue at a later period, we cannot apply the same idea here, the great drawback being the six elements we have here in place of five. Thus the present hypothesis of the creation of the universe is different from that developed at a much later period.

III. CELESTIAL EQUATOR. EQUINOXES AND SOLSTICES. SUN'S NORTHWARD AND DOWNWARD SHIFTING IN A YEAR.

1. *Trita and Viśvarūpa.*

Trita.—Trita is a minor deity of Rigveda. No particular hymns are dedicated to him : but he is mentioned incidentally in some twenty-nine hymns, where his name is scattered through different passages (*rks*).

He is sometimes called by the name of *Trita Āptya* (Trita of the waters) or only by the name of *Āptya* (I. 105. 9 ; V. 41. 9 ; VIII. 47. 14 ; X. 8. 8). Again we get the mention of a sage named *Trita Vaibhūvasah* (X. 46. 3) who is said to have obtained fire on the ground. In many places (X. 46. 6 ; X. 115. 4 ; etc.), Agni has been qualified as *trita*, that is, with three forms. *Trita Āptya* also appears in the personification of a sage and several hymns are assigned to him (I. 105 ; VIII. 47 ; IX. 33-4 : 102 ; X. 1-7).

Trita is associated or mentioned with several other deities. He is closely associated with Indra, and we shall study this association later. He is closely related to Soma ; we shall follow the relationship in connection with Trita's works. Trita is connected with Agni (celestial fire—the sun ?) in several ways, which we shall discuss below. Trita is mentioned with the Maruts (II. 34. 10 ; V. 54. 2 ; VIII. 7. 24 ; etc.). We are told that the Maruts killed the enemies of Trita (II. 34. 10). When the Maruts, having harnessed their steeds, traverse every place and meet the lightening, Trita roars and widespread showers of rain fall to the ground (V. 54. 2). Further, the Maruts preserved the strength of Trita (VIII. 7. 24). Trita is further mentioned as holding Varuṇa in the sea (IX. 95. 4). Lastly, we find that the Vāyus (winds) asked the help of Trita (X. 115. 4).

We do not find any suggestions or statements regarding his physical characteristics. We are told of his iron-pointed shaft (X. 99. 6) and his arrows (II. 11. 20) ; we are also told that he slew Viśvarūpa with his weapons (X. 8. 8). Trita has been praised as a raingiver, as one like the womb of the firmament and as the grandson of waters. All we know about the place of Trita is that his abode is secret (IX. 102. 2) and is in the heaven (V. 9. 5 ; V. 41. 4).

We now consider the works attributed to Trita. Firstly, the slaying of Vṛtra. He is closely associated with Indra in his work. He cleft the joints of Vṛtra by the strength of the

food (the Soma beverage) (I. 187. 1). Again we are told that he helped Indra in his fight with Vṛtra and in giving this assistance he was further aided by the Maruts (VIII. 7. 24). Further Indra seized the cows from Ahi and gave them to Trita (X. 48. 2). Ahi seems to be identical with Vṛtra. In this conflict with Vṛtra, Indra acted according to the will of Trita (VIII. 52. 1). Secondly, the slaying of Viśvarūpa. Urged by Indra and knowing his paternal weapons Trita slew Viśvarūpa, the three-headed, seven-rayed son of Tvastṛ (X. 8. 8). Viśvarūpa was delivered by Indra to Trita (II. 11. 19). The same feat is also attributed to Indra himself elsewhere (II. 11. 19; X. 8. 9). Indra, while subduing the Dāsa, also subdued the three-headed six-eyed; Trita, empowered by the vigour of Indra, killed the boar by his finger-tips which are as sharp as the iron (the iron-tipped shaft) (X. 99. 6). Thirdly, the breaking of the fence (*paridhi*) of Vala. Trita cleft the fence (*paridhi*) of Vala (I. 52. 4, 5). Again we are told that Indra strengthened by the Soma-pressing Trita, possessed of good arrows, cast down Arbuda and with the Agnirasas rent Vala (II. 11. 20). Fourthly, Trita's work in connection with Soma. We are informed of Trita as a preparer of Soma (II. 11. 20; IX. 32. 2; IX. 38. 2; etc.) and as a purifier of the same (IX. 34. 4). Trita's maidens (fingers according to Sayana) urge the tawny-coloured Soma-juice with the stones for Indra (IX. 32. 2; IX. 38. 2). Trita becomes drunk with Soma-juice (VIII. 12. 16). In this connection we should note a few passages on Soma. Soma lies in the secret place near the two pressing stones of Trita (IX. 102. 2). Soma caused the sun along with the sisters (*jānivih*: or by growth, by increase in strength) to shine on the top of Trita (IX. 37. 4). Soma placed in Trita nourishes Indra situated in the sky (IX. 95. 4). Again we are told that (as if) Soma has created the name of Trita (IX. 86. 20). Indra drank Soma beside Manu, Vivasvat, and Trita (Vāḷakhilya 4. 1). Fifthly, we are told that Trita harnessed a steed given by Yama: Indra mounted the steed first. This steed was united with Yama, Aditya, and Trita by a secret operation. Sixthly, Trita blows upon the rising flame of Agni like a smelter and sharpens (strengthens) him as in a smelting furnace (V. 9. 5). Trita, eagerly seeking Agni, found him on the head of the cow. Trita surrounded by flames seated himself within his place (X. 46. 3, 6).

We are also informed of several other facts about Trita. First, Trita fell into a well and prayed to the gods for help: Brhaspati released him (I. 105. 17). While within the pit, Trita prayed to his father and went forth claiming his paternal weapons (X. 8. 7) with which he fought with Viśvarūpa. Secondly, Trita, to gain his ends, turned round the five principal hotṛs together by his circle (*Cakra*). Thirdly, Trita knows the existence of the seven rays to which his navel is

extended (connected) and was praying to them to get out of the pit (I. 105. 9). Fourthly, the horse killed in the horse-sacrifice is said to stay with Yama, Āditya, and Trita (I. 163. 3). This horse is said to be tied to heaven in three places. Fifthly, Ādityas and Ūsās are prayed to transfer ill deeds and evil dreams to Trita (VIII. 47. 13-17); such an idea is also suggested vaguely in Atharvaveda, where it is mentioned that the guilt or dream is transferred to Trita.

Trita is also mentioned in other Vedic literatures. In Taittiriya Samhitā (I. 8, 10. 2). Trita is considered to be the bestower of long life. We find this mentioned in several other treatises in association with Ekata and Dvita, as noted below.

The three deities, Ekata, Dvita, and Trita are closely associated. We do not find the word Ekata in the Rigveda, but the term Dvita occurs in the Rigveda as the name of a sage who is called Dvita Aptya (IX. 103). There is another sage who has been called Dvita Mṛktavāhā of Atri family (V. 18). All the three names, Ekata, Dvita, and Trita are found together in Taittiriya Samhitā (I. 8, 10. 2), Vājasaneyi Samhitā (I. 23), Taittiriya Brāhmaṇa (III. 2. 8, 10-11), and Śatapatha Brāhmaṇa (I. 2, 3. 1). Sayana, in his Introduction to Rigveda I. 105, says that, according to the Sātyānas, Ekata, Dvita, and Trita were in ancient times three sages; once upon a time they were in a desert and having felt thirsty came to a well. Trita entered into the well to drink the water and also brought water out of the well for the other two. These two sages, after they have had drunk the water, seized the money of Trita, threw him into the well, covered the mouth of the well with the wheel of a chariot, and went away. Trita prayed to the gods in his mind to get him out of the well. Having seen the moonlight inside the well at night, he worshipped the gods. Yāska in his Nirukta (IV. 6) explains the word *trita* as meaning 'very proficient in wisdom' and as a numeral referring to one of the three brothers, Ekata, Dvita, and Trita. In another place (IX. 25) he considers Trita as 'Indra in three abodes' (that is, heaven, earth, and air). Lastly, we have the mention of three deities in Mahābhārata (XII, 12,772), where they are called the desired (*mānasa*) sons of Brahmā.

We have references to Trita in the Avesta, where he appears as Thrīta and Thraetaona, perhaps as two distinct persons (?). Thrīta (Yasna IX) was the third person in the corporeal world who prepared Haoma (Soma), the others being Vivanhvat (Vivasvat) the first, Āthwya (Āptya) the second, and Pourushāspa (Parucchepa ?) the fourth. Thrīta had two sons (Vendidad I. 68, 69). Thraetaona was born to help Varina (Varuṇa ?) with four corners and killed the serpent Dahāka (Dāsa). In another place (Khorda Avesta XXI, 33), Thraetaona is mentioned as Varena, the four-cornered. The Dahāka (Khorda Avesta XXI,

34), the snake, has three jaws, six strong eyes, and of thousand-fold strength.

Viśvarūpa. The word occurs some twenty times in the Rigveda. Except in four passages (II. 11, 19; X. 8, 8-9; X. 99, 6.), the term has been used to qualify various deities (as, the Sun, the Maruts, Tvaṣṭṛ, Brhaspati, etc.) and perhaps means 'omniform' or 'having the sum-total of the world's beauty'. In the above-mentioned four passages we have the indication of a story in which Viśvarūpa appears with a distinct personality.

Viśvarūpa is the son of Tvaṣṭṛ (II. 11, 19). He had three heads (X. 8, 8; X. 99, 6), six eyes (X. 99, 6), and seven rays (X. 8, 8).

We are informed of the conflict between Viśvarūpa on one side and Indra and Trita on the other. Indra killed Viśvarūpa to gain the friendship of Trita (II. 11, 19). In another place we are told that Indra raised a loud noise around the cattle of Viśvarūpa and cut down the demon's head looking upwards and full of glory and valour. His three heads hang down. Again we are told (X. 99, 6) that Indra struck the roaring demon (*dāsa*) and to subdue the three-headed and six-eyed one, lent his might to Trita who tore the boar into pieces with his sharp-nailed fingers. Lastly (X. 8, 8), we are informed that Trita Āptya, sent by Indra, killed the three-headed, seven-rayed one.

The above-mentioned story has been much expanded in Taittiriya Saṃhitā (II. 5, 1), Maitrāyaṇī Saṃhitā (II. 4, 1), Kāthaka Saṃhitā (XII, 10), and Śatapatha Brāhmaṇa (I. 2, 3, 2; I. 6, 3, 1-5; V. 5, 4, 2-6). The bodily characteristics of Viśvarūpa have also been described in the last-named work (I. 7, 3, 1; V. 5, 4, 2) as having three heads, six eyes, three faces, and similar (that is, similarly peculiar) form. Of the three heads of Viśvarūpa, one used to drink Soma, one wine, and one used to eat food. When Indra cut off the three heads, the first one became a hazelcock, the second a sparrow, and the third a partridge.

I shall now deal with the views of oriental scholars on the physical nature of Trita and Viśvarūpa.

Macdonell (*Journ. Royal Asiatic Soc.* for 1893, pp. 419-496; *Vedic Mythology*, p. 69) has discussed at length the views of various scholars and has advanced one of his own. We may briefly enumerate them here. A. Kuhn (1846), depending upon a small portion of the Rigveda then published, thought that Trita was identical with Indra. Roth (1848) came to the conclusion that Trita is a water and wind (*Vāyu*) god. Myrianthus (1876) thought Trita and his successor Indra to be 'a designation of the sky'. Ludwig was inclined to identify Trita with Vāyu and sometimes with Soma. Bergaigne identified Trita in his origin partly with the celestial Agni and partly with the celestial Soma. Pischel at first thought that Trita

was a god of the sea and waters; later he took Trita to be originally a human healer who was subsequently deified. Hillebrandt regarded Trita as a deity of the bright sky. Perry believed him to be a god of the storm, older than Indra. Hardy took him to be a moon-god. Macdonell regarded Trita as the god of lightening or 'the aerial form of fire, originally the middle member of the triad Agni, Vāyu or Indra, Sūrya. Plunket (*Ancient Calendars and Constellations*, pp. 176-7) regarded Trita as a 'personification of the third of the moon's course through the constellations of the Zodiac at the season of the summer solstice (in Aquarius or in Pisces, sometimes indeed at the junction of these constellations)'.

Coming to Viśvarūpa we find that Kālinath Mukherji is his *Popular Hindu Astronomy*, pp. 125, 139, suggested that Viśvarūpa is the constellation Orion (Kāla-puruṣa). He regarded the three prominent stars in the head of the Orion as the three heads of Viśvarūpa.

I shall now discuss the physical nature of Trita and Viśvarūpa and shall express my own views. We find that the latter has been described as a serpent with three heads, six eyes, seven rays, and of thousandfold strength (in the Avesta and Rigveda). Hence we cannot identify him with Orion. We know that from ancient times a large snake-like constellation figure has been recognised on the south of the ecliptic (the sun's apparent circular path in the heaven) sweeping over nearly one-fourth the entire circle of the heaven and lying beneath the Zodiacal constellations Cancer, Leo, and Virgo. This is named *Hydra*. The posterior part of its body lies beneath *Citrā* (Spica), the presiding deity of which is Tvaṣṭṛ, the father of Viśvarūpa. The number of heads of the Hydra has been variously counted from 7, 9, several to 100, according to various records and legends (Brown's *Primitive Constellations*, Vol. I, pp. 104-5). It is the storm and ocean-monster of the ancients and has been also called the water-snake. From these evidences we are inclined to identify Viśvarūpa as the constellation Hydra.

Coming to Trita, we find that he is closely associated with Indra, Soma, Agni, Maruts, and Vāyu, and hence he cannot be identified with any of them. There is, however, sufficient evidence for the belief, already held by the oriental scholars, that some of the feats attributed to Trita in the Avesta and in the earlier hymns of the Rigveda have been transferred to Indra in the later hymns of the latter work and that Trita has been thrown into the background. That Trita is closely connected with the rains in the season of the summer solstice is clearly shown by his association with Indra (who is evidently the presiding deity of the summer solstice—Plunket, *Ancient Calendars and Constellations*, pp. 115) particularly in the slaying of Vṛtra (either a personification of the cloud, as held by most of the authorities, or the constellation *Hydra* according to

Plunket), Maruts and Vāyu, as well as with the thunderstorm and downpour of rains. Further, considering his abode in the heaven, the position of the sun on his top, and his slaying of Viśvarūpa (Hydra), we can definitely assign his place to that part of the heaven which lies beneath the summer solstice in the ecliptic in close connection with the Hydra. When one thinks of the three brothers, Ekata, Dvita, and Trita and of Trita's *cakra*, one is inclined to entertain the idea that they form together a complete circle, each representing its one-third. Taking into account the close connection of Trita with the rainy season and finding that he has two other brothers, I think it probable that the three brothers are in some way connected with three seasons, recognised in the early Vedic period. Plunket also holds the view that the three form a circle and he considers that Trita represents one-third of the circular path of the moon. Trita's close association with Soma (which he takes as the moon) has led Plunket to arrive at such a conclusion. But I am unable to adhere to his view and am led to the conclusion that Trita represents one-third part of the equator connected with and lying beneath the summer solstice for the following reasons: (i) Trita's slaying the Viśvarūpa. This is easily explained if we think that the equator was passing through the constellation figure Hydra. This actually happened sometime about 3000 B.C., when the equator passed through the neck of the figure. (ii) Trita's fall into a pit. This statement can be reconciled if we remember that half the equator is placed beneath (on the south of) that half of the ecliptic which has the summer solstice in the middle. This depression of the equator has been allegorically described as Trita's fall into a pit. Again all the statements concerning the close connection of Trita with Soma, on which Plunket has based his conclusion, can be reconciled for the following reason: The moon's orbit cuts the ecliptic at two points (spoken of as the *ascending* and *descending nodes*) and the plane of its orbit is inclined to the plane of the ecliptic at an angle of $5^{\circ}8'$ approximately. Again these two points are known to shift along the ecliptic and the plane of the moon's orbit is known to revolve so as to cover a complete circle of 360° in the course of $18\frac{2}{3}$ years. If we assume that, at the time of the observation, the moon's orbit was so placed between the ecliptic and equator towards the equinoctial point (perhaps autumnal equinox) that the moon in her path came close to the equator, we can interpret all the facts stated in the Rigveda on this point. The Soma-juice was evidently so correlated with the moon that what is Soma-juice to an earthly being is the moon (the celestial beverage) to the heavenly deities.

Macdonell's view that Trita is the god of lightening cannot be accepted for the same reasons as are cited above. Further we do not find any passage which directly connects him with

lightening, although he is distinctly mentioned as the rain-giver; he is connected in a general way to all the phenomena we see connected with the rains.

Some of the feats of Trita remain unexplained until we can find out the physical nature of the personalities connected with such feats.

2. *Mitra and Varuṇa.*

Mitra and Varuṇa, being closely associated in the Rigveda, are here considered together.

They are invoked together in some nineteen hymns and in about two hundred and thirteen passages in addition, with or without other deities. Mitra has been praised alone in a single hymn (III. 59) and with or without Varuṇa in about two hundred and forty-one passages. Varuṇa has been addressed alone in seven complete hymns and with Indra in seven complete and parts of two hymns. He has been altogether invoked about three hundred and fifteen times, with or without Mitra and other deities. Their wives are also mentioned in several passages (I. 22. 12; I. 109. 2). They are associated with Aryaman in a large number of passages.

There are many physical features attributed to Mitra and Varuṇa. They are visible (I. 38. 13; V. 65. 1), bright (I. 136. 4; II. 27. 2; V. 67. 1; VII. 66. 17; etc.), full of strength (III. 59. 8; VI. 48. 1; VII. 66. 2; etc.), producers of sound (X. 102. 7) and fire-tongued (VII. 66. 10). They are emperors (V. 63. 2, 3; VIII. 25. 4). Their brightness illuminates the heaven and earth and sky. They are unequal (*asama*) (VI. 67. 1).

We are informed of Varuṇa's traits. He is irritable (IV. 41. 4), orderly (*dhṛtavrata*) (I. 141. 9; II. 1. 4; etc.) and white in colour (VIII. 41. 9; etc.). We are told of Varuṇa's wrath (I. 24. 6; VII. 84. 2; etc.). Agni is invoked for relief from Varuṇa's wrath (IV. 1, 4) and from Varuṇa's mischief (I. 128. 7). Soma and Rudra have been invoked to save from Varuṇa's trap (VI. 74. 4). Varuṇa's garments are all golden (I. 25. 13). Varuṇa and Indra are friendly to each other (V. 41. 3).

Mitra and Varuṇa are Ādityas (I. 14. 3; II. 27. 2, 6; etc.); they are Aditi's sons (VIII. 25. 2; X. 36. 3); Aditi gave birth to them (VIII. 25. 3). Varuṇa has seven sisters, of whom he is in the middle (VIII. 41. 2; VIII. 59. 4). Vibhṛvā (one of the Ṛbhus) belongs to Varuṇa (IV. 33. 9). Varuṇa is Agni's brother and friend (IV. 1, 2, 3). Dawn is Varuṇa's sister (I. 123. 5). Varuṇa and the sun follow the regulations of Indra (I. 101. 3). We are told of Mitra and Varuṇa's messengers (VI. 67. 5; VII. 61. 3). Varuṇa's messengers sit down around him (I. 27. 13). Varuṇa's messengers are thousand-eyed (Atharvaveda IV. 16. 4). Varuṇa, again, is the horse of the sacrifice (I. 163. 4).

Mitra and Varuṇa always travel in the same chariot (V. 62. 2). They remain in the highest region in their chariot (V. 63. 1). Their chariot is golden with metallic pegs (V. 62. 8) : it remains in the sky, shining like lightening (V. 62. 7). Varuṇa's steed is of a tawny colour (V. 62. 7).

Mitra and Varuṇa live in the heaven (I. 137. 1) ; their abode is old (VIII. 25. 17), golden (I. 136. 2.) and very lofty (VII. 88. 5) ; their house has a thousand doors (VII. 88. 5). The sun, rising from his place, goes to the abodes of Mitra and Varuṇa (I. 152. 4 ; VII. 60. 1, 3).

Let us now consider the usual works of Mitra and Varuṇa—
 (1) Mitra and Varuṇa, like several other deities, are closely connected with the heaven and earth and sky. They hold the three worlds (III. 59. 1 : V. 69. 1 : X. 132. 2 ; etc.). They have separately fixed the heaven and earth by their strength (VII. 61. 4). With Aryaman, they support the three grounds (three regions of the earth) and three (regions of the) heavens (II. 27. 8). Mitra and Varuṇa point out the path to the heaven (V. 64. 1). Varuṇa made the sky spread all round (V. 85. 2). Varuṇa has measured the extent of the earth (VIII. 42. 1).
 (2) Mitra and Varuṇa are the regulators of time. With Aryaman, they have established the autumn (year), month, and day and night (VII. 66. 11) ; with Indra and Agni, they originated the day (V. 49. 3). Dawn is, so to say, the lustre of Mitra and Varuṇa (III. 61. 7). Mitra destroys the darkness (I. 141. 9). Varuṇa knows the twelve months and knows how the months originate (I. 25. 8). Varuṇa makes his own lustre white and black (that is, originates the day and night) (VIII. 41. 10). He embraces the night (VIII. 41. 3). He makes three dawns grow (VIII. 41. 3). Everyday, the dawns are placed in front of the place of Varuṇa at a distance (the rate) of thirty *yojanas* (I. 123. 8). He speaks of twenty-one names of the cow (VII. 87. 4).
 (3) Mitra and Varuṇa are regarded as the givers of rain. They are lords of water (VII. 64. 1). They cover the mountains with clouds (V. 85. 4). They keep the sun hidden with cloud (V. 63. 4). They cause the downpour of rain (V. 63. 1 ; V. 68. 2, 5) and cause the rivers to flow (V. 62. 4). They soak the pasture grounds (VII. 62. 5). They make the annuals grow and fatten the cows (V. 62. 3). Indra's thunderbolt gives pleasure to Mitra and Varuṇa. Varuṇa, again, is regarded as the lord of water (VII. 49. 3). He is the originator of water (VII. 87. 6) and has distributed sky-born water to all (VII. 87. 1). Varuṇa has hundreds of thousands of medicinal herbs (I. 24. 9). He soaks all the grounds (V. 85. 3). Indra and Varuṇa fill up the dry rivers with water (VII. 82. 4). In one passage (V. 69. 2), three bright ones are said to be carriers of water (*retodhāh*) and givers of rain ; they live in their own abodes. They seem to be Mitra, Indra, and Varuṇa.
 (4) Mitra and Varuṇa are closely connected to the

sun. The sun is regarded as their eyes (VI. 51. 1; VII. 61. 1; X. 37. 1; etc.) as also representing the eyes of Mitra, Varuṇa, and Agni (I. 115. 1). Again, the sun is Varuṇa himself (I. 50. 6). The sun is their friend (I. 152. 4) and is as if it were their weapon (V. 63. 4). Mitra and Varuṇa exhibit their brightness in the sun's abode (VIII. 28. 19); they increase the sun's brightness (V. 62. 2). They hold the sun in the sky (V. 63. 7; V. 66. 2). The sun exhibits his bright form to make Mitra and Varuṇa visible (I. 115. 5). The sun's motion and setting are the works of Mitra and Varuṇa (III. 55. 6). When the sun rises in the morning, Mitra and Varuṇa, riding on their chariot, look at Diti and Aditi (V. 62. 8). Agni is called Mitra and Varuṇa (VI. 12. 3). Mitra and Varuṇa spread light all round (X. 31. 9). Again, Varuṇa is said to hold his brightness high up in the sky (I. 24. 7). He fashioned the sun for brightness (VII. 87. 5). Varuṇa surrounds his well-nourished body with golden garments and spreads his golden rays all round (I. 25. 13). Varuṇa arranged for the sun's path and separated the days and nights from one another (I. 24. 8; VII. 87. 1). Varuṇa, with Indra, made the sun move in the sky (VII. 82. 3). Lastly, Varuṇa measured the sky with the sun like a balance (V. 85. 5); he fashioned the sun in the sky for brightness, like a balance (VII. 87. 5). Viṣṇu, again, is said to have his three steps by the laws of Mitra for Indra (VIII. 52. 3).

We should also consider some minor deeds of Mitra and Varuṇa. (1) They became four-cornered (provided with four weapons--Sāyaṇa) killed the three-cornered (three-weaponed) one (V. 152. 2). (2) Varuṇa holds the directions on the earth (VIII. 41. 2); he extends to (all) the directions (VIII. 41. 2). (3) It is by Varuṇa's order, that the moon shines at night (I. 24. 10). (4) Mitra and Varuṇa hold Dadhikrā (IV. 31. 2, 5).

Lastly, there are several myths connected with Mitra and Varuṇa. (1) They know the Aśvins (VI. 62. 9). (2) When Purukutsa, the son of Durgaha, was imprisoned (killed?), the seven sages (*saptarṣis*) became the lords of the country. Purukutsa's wife performed a sacrifice for Indra and Varuṇa and was gifted with a son, Trasadasyu (IV. 42. 8, 9). (3) When Śunaḥśepa was bound down to three wooden pillars, he prayed Varuṇa to release him by loosening the ties above, below and in the middle. He got free (I. 24. 13-15). There is a detailed account of Śunaḥśepa in Aitareya Brāhmaṇa. (4) Mitra and Varuṇa, invoked in a sacrifice, placed their seminal fluid inside a pitcher; from inside this came out Māna (measure; Agastya, according to Sāyaṇa) and Vasiṣṭha was born (VII. 3. 13). The semen was taken in by Urvaśī who gave birth to Vasiṣṭha (VII. 33. 11, 12); Vasiṣṭha threw out light like lightening; Mitra and Varuṇa looked at him. Agastya also brought him from (his) place. He was then born (VII. 33. 9, 10). (5) There is another

myth regarding Vasistha (VII. 88. 3, 4). Vasistha was compelled to go on a boat with Varuṇa. The boat was made to move on the sea (sky) during the day time by Varuṇa. Vasistha was happy on this boat-like swing. (6) When the king Sudāsa was attacked by ten aboriginal kings he defeated them with the help of Indra and Varuṇa (VII. 83. 7, 8).

Lastly, we find many requests to Mitra and Varuṇa. A few of these entreaties are of importance to us. They have been invoked for protection from great distress (*Vṛhadvaruṇa*) (VIII. 18. 20) and three distresses (*trivaruṇa*) (VIII. 18. 21). Indra and Varuṇa together have been invoked for progeny, fertile land, and long life (IV. 41. 6).

We find mention of Mitra and Varuṇa in the Brāhmaṇas. Opposing qualities have often been attributed to Mitra and Varuṇa: Mitra is right, Varuṇa left (Taitt. 1. 7. 10. 1); water (payah) is Mitra's and Soma is Varuṇa's (Śatapath. 4. 1. 4, 9); Mitra is *prāṇa*, Varuṇa is *apāna* (Śatapath. 8. 4. 2, 6; etc.); Mitra is day, Varuṇa is night (Aitareya. 4, 10); and so on. Again, Varuṇa has been called the year (*sambatsara*) (Śatapath. 4. 1. 4, 10).

In the ancient astronomical treatises, Mitra is regarded as the presiding deity of *Anurādhā nakṣatra* (Yajusa. 10, 33; Āre. 10, 26; Soma-siddhānta 4. 6-34; Sūrya-siddhānta 8. 18) and Varuṇa is that of *Śatabhiṣā* (Yaj. 34; Āre. 27; Brahma-siddhānta 2. 174; Pitāmaha-siddhānta). The *saptamī tithi* in connection with the *Śatabhiṣā nakṣatra* in the month of *Agrahāyana* is recognised as *Mitra-saptamī*.

Mithras is the Iranian form of the Vedic Mitra (Plunket, p. 81). He was the sun-god of the Persians and his worship was introduced into Rome about the time of the fall of the Republic. The birthday of the sun-god was kept at the winter-solstice, but the great festivities in his honour were held at the season of the spring equinox. Mithras used to be represented in sculpture as thrusting his dagger into the neck of the mystic bull. Sometimes a scorpion was made to join with Mithras in his attack upon the Bull (Plunket, pp. 61-64).

Coming to the opinion of the Vedic scholars, we see that Mitra is regarded as 'a sun-god or a god of light specially connected with the sun' (Macdonell's *Vedic Mythology*, p. 30). The physical nature of Varuṇa has been discussed in *Vedic Mythology*, pp. 27-28. 'According to the generally received opinion', Varuṇa 'is the encompassing sky'. Varuṇa later on became the god of the sea. Oldenberg regarded Varuṇa as representing the moon, but this is not accepted by Macdonell.

I shall now set forth my own views on the physical basis of Mitra and Varuṇa. We have already obtained some evidence regarding the physical nature of Mitra from our knowledge of the Persian sun-god Mithras. His representation as killing the Bull with the help of Scorpion has already been interpreted

as the sun-god coming in conjunction with the sign Taurus in the day time and at night by Scorpio, the constellation in opposition. 'This triumph of Mithras was associated traditionally—in Roman days it could only have been traditionally—with the occurrence, at a remote date, of the spring equinox during the time the sun was in conjunction with the constellation Taurus' (Plunket, p. 64). We have already seen that the birthday of Mithras used to be taken as the winter solstice during the Roman period. From our side, we see that the asterism Anurādhā, of whom Mitra is the presiding deity, is placed in the sign Scorpio. Again, the asterism Śatabhiṣā in the month of Agrahāyana is dedicated to Mitra. Taking all these facts together we may take Mitra to be the presiding deity of the winter solstice or vernal equinox. Considering that dawn is the lustre of Mitra, that Mitra destroys the darkness, that Mitra increases the brightness of the sun, that Mitra can look at both Diti and Aditi, and that Viṣṇu had three steps by the laws of Mitra, I take Mitra to be connected with the vernal equinox. Further, in his many functions, Mitra is directly opposite to Varuṇa, who appears to be the presiding deity of the autumnal equinox. We find Varuṇa to be closely connected with water and to be associated with Indra. He is also closely connected with the sun. The great fact which reveals his true nature is that he swings the sun like a balance. This is very suggestive of the equinoctial point from which the sun is known to move on either side to the solstitial points. His opposite position and nature to Mitra and his special connection with water and the growth of herbs, make me believe that he really represents the autumnal equinox or its presiding deity. All the facts which we find in connection with Mitra and Varuṇa can be very well reconciled if we accept this view. Varuṇa's irritability may refer to the distress from flood in the autumn or to the trying moist heat at this period of the year. Varuṇa's messengers seem to be the clear sky studded with stars. The same chariot for them both evidently refers to the same position of the two equinoctial points. The progress of the dawns daily from the abode of Varuṇa at a distance of thirty *yojanas* has been explained by Sāyana thus: The period of dawn is that when the stars cannot be seen and the sun has not risen. It extends from 21st to 26th hours. Varuṇa is the sun. Every day the sun moves round the *meru* by five thousand and fifty-nine *yojanas*. The dawns also go ahead by thirty *yojanas* and hence appear in places thirty *yojanas* distant in front of the sun. The passage might have indicated the increase of the duration of night by the receding of the dawn and the late rising of the sun. Mitra and Varuṇa's destroying the three-cornered one by a four-cornered may mean the recognition of the four equinoctial and solstitial points in place of the three seasonal periods or

the three steps of the sun from the equinox to one solstice, one solstice to another and from the solstice back to the equinox again.

Mitra and Varuṇa's knowledge of the Aśvins may mean that the vernal equinox was placed on the asterism Aśvinī at that time. The seven sages becoming the lords of the country may mean that the *saptarṣi* (Great Bear) was nearest the polar star. This happened about 3000 B.C. The story of Śunahṣepa may indicate that the precession of the equinoxes came to be known by the sages. Śunahṣepa may be the personification of the obliquity of the ecliptic. The three pillars may be the two solstices at the sides (summer solstice higher up and winter solstice lower down) and the equinoctial points at the same place in the middle. Freeing Śunahṣepa by Varuṇa may indicate that the movement of the ecliptic along the equator (rather than of the equator along the ecliptic), not known before, was now recognised, at the time of the autumnal equinox. In the myth of Vasiṣṭha, Vasiṣṭha is the sun. Urvaśī is the dawn. Agastya is the star Canopus. The boat seems to be the constellation Argo of which Canopus is the most brilliant star. The pitcher seems to be the constellation figure of Aquarius. Vasiṣṭha's birth appears to be the sunrise. The whole story thus refers to the heliacal rising of Canopus at the time of the vernal or autumnal equinox. In this connection we quote the following few lines from Plunket: 'the almost upright and symmetrical position of Argo 3000 B.C. may suggest the likelihood that at that date or perhaps a few hundred years later . . . this constellation was imagined. It will be observed that all the stars of Argo, even the bright and southern Canopus at 35°N., would have been above the horizon and visible at midnight of the winter solstice. At noon of the summer solstice they would have been above the horizon, but invisible in conjunction with the sun . . .'

3. *Indra.*

Indra is the most prominent of all the deities invoked by the Rīgvedic sages. More than two hundred hymns have been dedicated to him. He is also addressed in parts of some fifty-five hymns. Further, he is mentioned in many passages that refer to other deities. Indra has been praised with Agni in eleven hymns, with R̥bhus in one hymn, with Pūṣan in one hymn, with Bṛhaspati in five hymns, with Varuṇa in ten hymns, with Vāyu in five hymns, with Viṣṇu in three hymns, and with Soma in three hymns. He has been associated with the Maruts in a large number of passages.

We are informed of many of the physical features of Indra. He has a body, with head, arms, and hands (II. 16. 2; VIII. 85. 3). His belly has been many times referred to in connection with the drinking of Soma juice (II. 16. 2; etc.). He

has two eyes (X. 96. 9). His jaw or nose has been mentioned (III. 32. 3); and he has often been called good-nosed (*suśīpra*, I. 9. 3; *śipri*, I. 81. 4; etc.). His arms are long, great and far-reaching (VI. 19. 3; VIII. 32. 10; etc.). He has tawny hair (X. 96. 3, 4; etc.) and a tawny beard (X. 96. 4). He has the most beautiful form and the ruddy brilliance of the sun (X. 112. 3). He is golden (I. 7. 2; VIII. 55. 3). He is seven-rayed (II. 12. 11) and is the lord of rays (III. 31. 4). These attributes also apply to the sun. In two hymns (II. 42, 43), the Francoline partridge has been invoked as Indra in the garb of the bird.

Many personal traits of Indra are known to us. A large number of epithets has been applied to Indra (II. 21. 1-4; etc.), mostly expressive of his great might. His vastness is referred to in several places (III. 30. 5; III. 46. 3; etc.).

As regards Indra's weapons, the thunderbolt is almost exclusively restricted to him. *Brhaspati* has been mentioned, once as the holder of thunderbolt (I. 40. 8) or using it for killing the enemy (II. 30. 9). The bolt was fashioned by *Tvastr* (I. 121. 12; V. 34. 2); in some other places *Uśanā* has had the same work attributed to him. (I. 121. 12; V. 34. 2). Many characteristics of the bolt are mentioned: It is metallic (*āyasa*), golden (I. 57. 2; etc.), bright (III. 44. 5) or tawny (III. 44. 4; etc.). It is four-angled (IV. 22. 2), or hundred-angled (IV. 17. 10), hundred-jointed (VII. 6. 6) and thousand-pointed (I. 80. 12). Indra has also been mentioned as armed with a bow and arrows (VIII. 45. 4; X. 103. 2, 3; etc.) and as carrying a hook (VIII. 17. 10). In the *Atharvaveda* (VIII. 8. 5-8), Indra is said to have a net.

Indra's golden car (VI. 29. 2) is drawn by tawny steeds (I. 174. 6; I. 177. 1; IV. 32. 22-24; etc.). The steeds vary in number from two to one hundred (II. 18. 4-6) and a thousand (II. 13. 9). They are white-backed (VIII. 1. 25) and sun-eyed (I. 16. 1, 2). The steeds are the givers of rain (I. 177. 2; VI. 44. 20). The steeds, as they travel, split up the directions into two (III. 43. 6). Indra's chariot and steeds were fashioned by the *Rbhus* (I. 111. 1; V. 31. 4).

Indra is said to be related to several deities. His mother is *Aditi* (IV. 18. 8), also the cow (*gr̥ṣṭi*) (IV. 18. 10; X. 101. 2). He is also called the son of one with a band round the neck (*niṣṭigrī*) (X. 101. 12). Indra's father seems to be *Tvastr* (I. 32. 2; II. 17. 6; etc.), *Agni* is his twin-brother (VI. 59. 2). He is the seventh brother of the *Ādityas* (X. 99. 2). *Pūṣan* is also his brother (VI. 55. 5). Indra's wife is mentioned in several places (I. 82. 5-6; V. 37. 3; X. 86. 11, 12; etc.).

Indra is helped by the *Maruts* in his works (I. 52. 4; I. 100. 1-15). In fact, he is called the master of the *Maruts* (III. 40. 3). He was also helped in his works by the *Rbhus*, with whom he rides in the same chariot (III. 60. 4). The

Aśvins also helped Indra in his works (I. 116. 21 ; X. 131. 4) ; once, they saved Indra (X. 131. 5).

We are told something about the birth and origin of Indra. Two hymns (III. 48 ; IV. 18) are concerned in describing his birth. He is often described as having been born. He is said to have wished to be born in an unnatural way through the side of his mother (IV. 18. 1. 2). He illuminates the sky after being born (III. 44. 4). He sets the wheel of the sun in motion after his birth (I. 130. 9). He was a warrior from his very birth (III. 51. 8 ; V. 30. 5 ; VIII. 45. 4 ; etc.). The mountains (sky ?), heaven, and earth trembled with fear when he was born (I. 61. 14). Indra, again, is said to have sprung from the mouth of *Puruṣa* (the Divine Being) (X. 90. 13). He is said to have arisen from Prajāpati (Śatapatha Brāhmaṇa and Taittiriya Brāhmaṇa).

Indra's abode is high up (II. 30. 5) in the heaven (II. 31. 3). Indra and Varuṇa travel over the dusty region (*rajas*—sky ?). He is lord of heaven (III. 30. 21). Indra, immediately after birth, is placed in the highest region (*parama vyoma*) (III. 32. 10). Again he has been invoked, with the Maruts, to come from heaven, sky, earth, water, the place of the sun (*ādityaloka*) and the distant place.

I shall now deal with the characteristic deeds of Indra. (1) Indra is connected in various ways with the heaven, sky, and earth. He is said to support them (III. 32. 8 ; III. 49. 4 ; IV. 16. 3 ; etc.), to have placed the luminaries in the heaven (I. 81. 5), to have built the universe (II. 12. 4), and to protect the flowers and annuals in the fields (II. 13. 7). Most of these works, however, cannot be properly said to be characteristic of Indra, as many other deities have also been endowed with these functions. (2) The main characteristic work of Indra is exhibited in connection with darkness, cloud, thunder, and rain. Indra is said to have covered (every thing) with widespread darkness (II. 17. 4). On the other hand, he is said to have removed darkness (VI. 17. 5), to have come out of darkness, and to have become bright (III. 39. 5). He is said to have relieved many dawns, autumns, and years of darkness (IV. 19. 8). Evidently, all these passages refer to widespread cloud-formation causing darkness. We have also direct mention of clouds. Thus, immediately after the birth of Indra, large clouds were held together and these poured down water on the ground (IV. 17. 2). Indra travels over the clouds (I. 155. 1), which he makes to grow (V. 32. 2). He cleaves the clouds (III. 30. 21 ; III. 45. 2 ; etc.), held fast by Vṛtra (II. 17. 1). He made water flow from the clouds (I. 33. 10 ; III. 57. 2 ; X. 99. 3 ; etc.). He released the choked clouds in the rainy season (V. 32. 2). In numerous passages, Indra has been regarded as the rain-pourer (I. 10. 10 ; II. 11. 9 ; IV. 30. 18 ; etc.). He gives rise to incessant rain with the help of Bṛhaspati

(II. 23. 18) and Pūṣan (VI. 57. 4). He has been invoked many times to give rain (I. 74. 9 ; etc.). He is said to fill up the rivers with water and to form rivers (IV. 19. 7 ; VI. 44. 21 ; etc.). He filled up the seas with water (I. 174. 9) and made it rise up (II. 15. 6). There are many evidences of his connection with thunder and storm. Thus, the heaven and earth, seas and mountains tremble with fear when Indra is born (I. 16. 14). He destroyed the villages by his thunderbolt, cleft the seven palaces of Autumn (I. 174. 2 ; VI. 20. 10) and broke the mountain peaks (V. 19. 5). All these phenomena are distinctly referred to in the killing of various demons (Dāsas) by Indra (see below). (3) Indra is again intimately connected with the sun. He has been identified with the sun (II. 30. 1 ; IV. 16. 1 ; VIII. 82. 4 ; X. 89. 2). His car has been called sun-eyed. Again, the sun is said to have originated from Indra (III. 30. 12) ; Indra fashioned the sun (II. 7. 12 ; III. 31. 15 ; III. 32. 8). He produced the brightness of the sun (II. 13. 7) and fashioned his path (X. 111. 3). Indra, with Soma (VI. 72. 2), raised the sun high up (in the sky). Indra holds the sun (I. 52. 6). He has placed him (in the sky) (VI. 17. 5) and makes him ascend in the sky (I. 7. 3 ; I. 51. 4). He makes the sun visible to us every day (VI. 30. 2). He is invoked (IV. 41. 6) so that one may see the sun for a long time. Indra is said to have produced the day (III. 34. 4) and make it visible (VI. 47. 21).

Indra has also arranged for the path of the moon in the sky (X. 138. 6).

Indra is also connected with dawn. He is said to have produced dawn (III. 31. 5 ; III. 32. 8) and established dawn (VI. 17. 5). Again, he is said to have destroyed her (IV. 30. 8-10), to have broken her chariot into pieces (II. 15. 6) and got her kidnapped by the sun (II. 20. 5).

Lastly, let us study some of the past deeds of Indra. (1) Of all the past deeds of Indra, the story of conflict between the sun and Etaśa and Indra's intervention in this matter is of great value to us. The true significance of this myth has already been dealt with in another place (*Indian Historical Quarterly*, Vol. V, 1929, p. 136). The story is told in a fragmentary form in a few passages (I. 61. 15 ; II. 19. 5 ; IV. 30. 6 ; V. 29. 5, 10 ; V. 31. 11 ; VIII. 1. 11). In brief, it runs thus : There was a conflict between the sun and Etaśa. Indra intervened in the conflict. In some passages Indra is said to have obstructed the sun and have allowed Etaśa to go ahead ; in others, Indra got hold of Etaśa and made the sun advance. (2) The story of Dadhīci is depicted in six passages (I. 84. 13, 14 ; I. 116. 12 ; I. 117. 22 ; I. 119. 9 ; X. 48. 2). Adhering to what is found actually in the Rigveda, we may narrate the story as follows : Dadhīci had the head of a horse, which the Aśvins bestowed upon him. Dadhīci received the honey from

Tvaṣṭr and gave it to Aśvins. The honey became a sort of binder round their (Aśvins') waist (*apikakṣya*). Indra, in search of Dadhīci's horse-head hidden in the mountains (clouds), got it in the region of darkness (*śaryanāvati*). He drove the cows (light ?) towards Dadhīci and killed the Vṛtras ninety-nine times with Dadhīci's bone (that is, thunderbolt made from Dadhīci's bone). (3) Indra killed the son of Tvaṣṭr (*viśvarūpa*) (III. 48. 4) (see above). (4) Indra brought out Agrū's son, surrounded by white ants, from the anthill. Agrū's son, thus taken out, although blind came to see Ahi. All the separated joints came together.

Although Indra has been mentioned many times in most of the Brāhmaṇas, there is nothing to be found there for our purpose. In Taitti. Br. (1, 5. 1, 5) the asterism *Śatabhiṣak* is assigned to Indra; but in ancient astronomical works the asterism is meant for Varuna. In Śatapatha Brāhmaṇa (5. 3. 3. 6), Indra is called Jyestha (the eldest). In Pitāmaha-siddhānta Indra is also called Jyesthā and in the Vedāṅga-jyotiṣa (Yaj. 33; Arc. 26) he is the presiding deity of the asterism Jyesthā. Indrāgni together is the presiding lord of Viśākhā (Yaj. 33; Arc. 26).

I shall now discuss on the physical nature of Indra. He is taken as the 'thunder-god, gigantic in size, a mighty eater and drinker, who slays the dragon with his lightning bolt' (see Macdonell's *Vedic Mythology*, p. 66). There is not the least doubt that Indra is a thunder-god and giver of rain. But we can proceed further. He is intimately connected with the sun, the sun's path and dawn. These facts lead us to the conclusion that he is connected with the ecliptic. Again, the passages in which he is stated to have produced the brightness of the sun, to have made the sun ascend in the sky, to have produced dawn and again to have destroyed her through the sun, all make us believe that he is connected with that part of the ecliptic which corresponds to the summer solstice. In northern India, the summer solstice is connected with rain and thunderstorm (summer monsoon); in the summer solstice the days are longest with a prolonged dawn, curtailing the night, and an early rise of the sun. All the facts concerning Indra and his connection with the sun and dawn can be well-explained if we accept him as 'the god of the summer solstice'. We have a further confirmation of this in the allegorical story of the conflict between the Sun and Etaśa. We take Etaśa as the *mean sun*. Their conflict means the point where they meet, that is, where the equation of time becomes zero. There are two components of the equation of time, one of which is the obliquity of the ecliptic and the other is the eccentricity of the orbit of the earth. The equation of time, due to the first cause, makes the true sun and mean sun (Etaśa) meet in the two equinoctial and solstitial points. But the combined effect is to place the meeting point on one side of these four

points. When this meeting point was placed before the summer solstice, the true sun was slower than the mean sun at the time of that solstice. When this meeting point was behind the summer solstice, the true sun was faster than the mean sun at that time. This meeting point is not fixed, but is moving very slowly year after year. The idea that Indra is the god of summer solstice has already been set forth by Plunket in his *Ancient Calendars and Constellations*, p. 115.

I shall now attempt to interpret some of the facts concerning Indra. Indra's connection with Varuṇa may be easily explained if we remember that the rains continue till the autumnal equinox (which is presided over by Varuṇa). Indra's origin from the mouth of *Puruṣa* (= *saṃvatsara*, Gopatha Brāhmaṇa, pūrva 5. 3, 5 and Śatapatha Brāhmaṇa, 12. 2. 4. 1) simply indicates that the beginning of the year was counted from the summer solstice. The story of Dadhīci, again, seems to be allegorical. Dadhīci is the horse-head constellation figure in the asterism Aśvinī. The Aśvins are the two stars of the same asterism, with their triangular chariot, the *bharaṇi nakṣatra* (*Indian Historical Quarterly*, Vol. VI, 1930, p. 172). Tvaṣṭṛ is the presiding deity of the asterism Citrā (Vedāṅga-jyotiṣa). Honey which formed the girdle round the waist of the Aśvins may be that part of the milky way extending from Citrā to Aśvinī. When the summer solstice was near the asterism Citrā, this asterism used to appear in eastern horizon at or before dawn and the Aśvinī with the horse-head constellation-figure lay on the western horizon, the latter covered with clouds and darkness. The clouds used to be dispersed with rain and thunder and at the same time the daylight used to make its appearance.

4. *Viṣṇu*.

Viṣṇu has been invoked thrice alone and twice with Indra ; in one hymn (I. 22) he has been praised alone in several passages and with Indra in others. Altogether he is eulogised or otherwise mentioned for about one hundred times.

Viṣṇu is friendly with the Aśvins (I. 156. 5) and with Indra (I. 22. 19). He remains associated with Indra (I. 156. 5). He and Indra are regarded as the masters of Soma (VI. 69. 3). The Maruts protect the sacrifice for Viṣṇu (I. 85. 7).

Viṣṇu is brilliant, seven-rayed (I. 155. 1), hundred-rayed (VII. 100. 3). He travels above the clouds with Indra (I. 155. 1).

The essential feature of Viṣṇu is his three strides (I. 154. 2, 3 ; I. 22. 17, 18), which are meant for Indra (VIII. 52. 3) and by which he travels round the worlds (I. 155. 4 ; VI. 49. 13). He goes to his very distant abode by these three steps (I. 154. 3). His highest step (I. 22. 20, 21) has a well, full of honey (I. 154. 5). Two of his steps are visible to men, but the

third one is beyond the flight of birds or beyond the idea of mortals (I. 155. 5; VII. 99. 2). Viṣṇu is further called wide-going (*urugāya*) and wide-striding (*urukrama*).

Viṣṇu is said to support the earth by his rays (VII. 99. 3). He supports the east side of the earth (VII. 99. 3). Like several other deities, Viṣṇu is regarded as supporting the worlds (I. 154. 4; VII. 99. 2).

The principal deeds of Viṣṇu are closely similar to (or identical with) those of Indra. Associated with Indra, he killed Vṛtra (VI. 20. 2) and destroyed the tricks of Vṛṣaśipra (VII. 99. 4). He also killed Varcī and destroyed the strongholds of Sambara (VII. 99. 5). Again, Viṣṇu made the circle of 90×4 revolve like a wheel (I. 155. 6).

Viṣṇu is of much less importance in the Vedas, but he comes into great prominence in the Brāhmaṇas and in the Purāṇas. I shall here confine my attention to the Rīgveda only.

It is unanimously held that Viṣṇu represents the sun. His essential characteristic, namely, his three steps, has been differently interpreted. The three steps have been regarded as his going to the heaven, sky, and earth by Sakapūṇi (Nirukta 12. 19). The commentator, Durgācārya, considers the three steps as the rise, ascent to the midsky and setting of the sun. We take the three steps as the shifting of the sun from the equinoxes to the solstice and from the solstice to solstice. Beginning from the equinoctial point in the mid-heaven, the first step is the sun's northward passage to summer solstice, the second step is his passage from the summer solstice to the winter solstice at the opposite side, and the third step is his passage from the winter solstice back to the equinoctial point. The positions of the two solstices are clear and distinct at the two ends, but the common place of the two equinoctial points is not visible: this has already been referred to (see above). Further, Viṣṇu's setting the circle of 360 in motion (see above) evidently refers to the annual motion of the sun and not his daily passage through the sky. Lastly, his association with Indra and his works common to those of the latter as the god of summer solstice, is quite clear.

IV. SEASONS.

1. *Rbhus*.

The *Rbhus* have been invoked in some seven hymns and celebrated or simply mentioned by name in a large number of scattered verses.

They have been addressed as the sons of *Sudhanvan* (good archer) (I. 110. 2 ; III. 60. 1 ; IV. 35. 1 ; etc.), sons of *Indra* (III. 37. 4) and grandsons of *Śavasa* (might) (III. 35. 1 ; III. 37. 4). They have also been referred to as children of *Manu* (III. 60. 3) and as *Ādityas* (VIII. 9. 12).

The *Rbhus* are bright (I. 161. 11 ; IV. 36. 5) like the sun (I. 110. 4) ; they are deft-handed (X. 66. 10), skilful (IV. 33. 1, 8), all-spreading (IV. 34. 9), leaders (of the world) (IV. 34. 9), and holders of the heaven (X. 66. 10).

Regarding their ornaments and equipments, we hear of their metal helmets and fair necklaces (IV. 37. 4) and of their bright car and fat steeds (I. 161. 7 ; IV. 37. 4 ; VII. 48. 1).

The *Rbhus* are three in number : *Rbhu*, *Vibhu* (or *Vibhvā*), and *Vāja* (I. 161. 6 ; IV. 33. 3). Fire has been invoked as *Rbhu* on several occasions (II. 1. 10 ; etc.).

The *Rbhus* have been endowed with many powers. For convenience the works of the *Rbhus* may be grouped under two headings : their usual work and past deeds. Their usual work is to make the charioteer skilful (IX. 22. 6), to lower the felly of the wheel of the chariot (VIII. 75. 5), and spread the firmament in a moment (IV. 33. 1). They also produce grass in the elevated regions and water in the low lands (I. 161. 11). They bring down *Indra*'s thunderbolt from heaven.

We are informed of many wonderful past deeds of the *Rbhus* : (i) They rejuvenated the old and worn-out parents (I. 20. 8 ; I. 110. 8 ; IV. 33. 2, 4 ; etc.). (ii) They fashioned a car for the *Aśvins* (I. 20. 3 ; IV. 33. 8 ; X. 105. 6 ; etc.). This three-wheeled car traverses the sky without horse and reins (IV. 36. 1) ; it moves in a circle without turning (IV. 36. 2) ; and when this car rises in the heaven, the maiden of the sky (*Kanyā*) makes her appearance (X. 39. 12). (iii) They made a cow (I. 161. 3 ; IV. 34. 9), which is omniform (*viśvarūpā*) (I. 161. 6) and yields nectar (I. 20. 3 ; III. 60. 2 ; etc.). The cow was formed out of hide (I. 110. 8) or drawn out from the hide (I. 161. 7 ; etc.). They again created the mother (cow) from the young (calf). They fashioned the cow for *Bṛhaspati* who drove up the omniform (*viśvarūpa*), while *Indra* yoked the two steeds and the *Aśvins* yoked the car (I. 161. 6). They also

protected the cow up to (the end of) the (whole) year and formed her limbs out of the flesh throughout the whole year and protected her beauty up to the end of the year (IV. 33. 4). (iv) They divided the cup devised by *Tvastr* (I. 20. 5) who is also mentioned as an *Asura* (I. 111. 3, 5; I. 161. 8; III. 60. 2; IV. 35. 2, 3; etc.). The eldest said that he should divide the cup into two, the second said that he should divide it into three, and the youngest that he should divide it into four (IV. 33. 5). When *Tvastr* said that those who have defied the drinking cup of the gods should be killed, the *Rbhus* took another name from that time and the maiden (*Kanyā*) pleases them by calling them by that name (I. 161. 5). When *Rbhus* had broken the cup into four pieces, *Tvastr* concealed himself amongst the women (I. 161. 4). In other places we are told that *Tvastr* expressed his desire (that the cup should be so broken) (IV. 33. 6) and praised them (IV. 33. 5). The *Rbhus* again made the cup (I. 161. 9). The cup is brilliant like the day (IV. 33. 6). (v) They made a steed out of another (I. 161. 7), prepared a shoulder-guard, separated the earth from the heaven, and produced a beautiful son (IV. 34. 9).

Owing to their wonderful deeds they gained immortality although they were mortal beings (I. 110. 4; III. 603; IV. 36. 4). They also obtained the friendship of various gods—*Rbhu* of *Indra*, *Vibhu* of *Varuṇa*, and *Vāja* of the gods (IV. 33. 9).

We are told that one holds water to be the best, another fire, and the last one growth (vigour) (I. 161. 9).

There is a passage (I. 164. 44) which runs thus: Three, provided with hair, look at the whole year in sequence of the *ṛtus* (seasons); of them, one strews (scatters), one sees the universe with his activity (work); of one there is motion, though no appearance (definite work) is seen. *Sāyana* takes them to be the fire, sun, and wind. They may equally well be taken as the three *Rbhus*, whose functions are to give rise to rain, to produce growth of vegetation and nothing in succession.

Lastly, there is a story concerning the *Rbhus*. They came to the house of the sun (named as *agohya* in some places) (I. 110. 2) and lay in his house. When they slept (in the house of the *agohya*), they asked the sun 'who awakens us here?' The sun answered 'the awakening dog; (it is a) complete year: reveal yourselves' (I. 161. 11). In another hymn (IV. 33. 7) we are told that when the *Rbhus* remain in the house of the sun for twelve days, they make the fields full of harvest and the rivers full of water.

I shall now discuss the physical basis of the *Rbhus*.

The word *Rbhu* means 'dexterous, skilful'; the word *Vibhu* 'the eminent' and the word *Vāja* 'the vigorous.'

Following *Sāyana* (in his commentary on I. 110. 6), some

of the oriental scholars, as Wilson, etc., hold that the *Rbhus* are sun's rays. Max Müller states that the names are meant for the sun or Indra in many places. Weber takes them to mean the genii of creative time, past, present, and future. Others, as Ludwig, Zimmer, Kaegi, Hillebrandt, and Hardy rightly hold them as the genii of three seasons (See Macdonell's *Vedic Mythology*, p. 133). I shall discuss this view fully below.

That the *Rbhus* are the three seasons or rather their presiding deities can be well maintained from the following evidences : (i) Many acts attributed to the *Rbhus*, as, for instance, the production of grass on the elevated regions and collection of water in low lands, bringing down of Indra's thunderbolt, preparing harvest-field and filling of rivers with water, are really works of nature intimately connected with seasonal variations. (ii) The *Rbhus* are three in number. Let us see with what seasons they are connected. Although the Indian year is at the present day divided into six seasons, we have reason to believe that the division was very variable in the Vedic and Brahmanic times. We find the lowest number of two, summer and winter, in the Smṛtis (Śabda-kalpadrūma, article '*ṛtu*'), but we have no evidence in the Rigveda. Such a division is quite feasible in the north-west portion of India (Panjab and Sind) where there are two extremely hot and cold seasons with or without scanty rains. Next comes the division into three : winter, summer, and rainy season (according to the Smṛtis). In Rigveda there are two passages (I. 164. 2, 48) in which a year has been said to consist of three *nābhīs* (navels). There is mention of three seasons in Śatapatha Brāhmaṇa (III. 4. 4. 17 ; XI. 5. 4. 21) and Kauṣītakī Brāhmaṇa (XI. 7), where each of them is taken to consist of 120 days. Sāyana enumerates them as *grīṣma* (summer), *varsā* (rainy season), and *hemanta*. In smṛtis they are *śīta* (winter), *grīṣma*, and *varsā*. The *hemanta* has been said to be last in Śatapatha Brāhmaṇa (I. 5. 3. 13), or middle in Taittirīya Brāhmaṇa (III. 11. 10. 4). Such a division is confirmed when we consider the climatic condition of the Indo-gangetic plain that has a summer monsoon attended with more or less heavy rain and a more equable temperature all the year round. The *hemanta* evidently means the winter. Next we have mention of five seasons in Tāndya Brāhmaṇa (XII. 4. 8 ; XII. 2. 3), Śatapatha Brāhmaṇa (II. 2. 3. 14 ; II. 5. 2. 16 ; III. 1. 4. 20 ; III. 1. 4. 5), and Aitareya Brāhmaṇa (I. 1). In the last work it is distinctly mentioned that *hemanta* and *kṣīra* (winter) have been taken to represent one. In Rigveda we have mention of five divisions of the cycle of the year (I. 164. 13) and five fellyies of the wheel of the sun (I. 164. 14). The division into five is rather secondary to the division into six. The division into six seasons has been mentioned many times in the Brāhmaṇas and has also been indicated in the Rigveda

(I. 164. 13). Lastly, there is a counting of seven seasons in the Brāhmanas (Śatapatha, VI. 6. 1. 14; IX. 3. 1. 19; etc.; Taittirīya III. 8. 3. 3 *in a year of 13 months*). This is also seen in Rigveda (I. 164. 3, 15); there are three which are paired, and a single one (unpaired). This counting however takes into consideration an intercalary month. The names of all the seasons are found in the Rigveda. Of them, the term *gharma* (which meant heat in the Vedic times) occurs about 24 times and has been used to mean the heat of the fire and the sun (distinctly pointing to the summer heat in many places). The term *grīṣma* occurs once (X. 90. 6) only. The term *prāṇis* (rainy season) occurs twice (X. 103. 3, 7). The term *varsā* does not occur in the Rigveda. The word *śarad* (autumn) occurs about 30 times throughout the work (in all the maṇḍalas) and has been used in the sense of a year, indicating a year-end. The term *hemanta* occurs once in X. 161. 4, where it points to an end of the year. The term *hima* (winter) occurs ten times in the first, second, fifth, sixth, and eighth maṇḍalas and in some passages (I. 64. 14; II. 33. 2; V. 54. 15); it indicates year-ending. There is no mention of the term *śiśira* which is used for the winter season in later periods (See Amarakosa). Lastly the term *vasanta* (spring) occurs twice (X. 90. 6; X. 161. 4) and in one passage it is made to indicate the year-ending. We find that the terms *gharma*, *śarad*, and *hima* occur many times in earlier hymns as shown by the name of their composers and by their grammatical peculiarities (see Arnold's *Historical Vedic Grammar*) and the others in the later ones. Hence we may take these three as the names of seasons into which a year used to be divided in the early Vedic period. Hence we may take the summer, autumn, and winter as the three recognised seasons of the early Vedic period. We are told that *Rbhu* obtained friendship with Indra, *Vibhu* with Varuṇa, and *Vāja* with the gods. From this we may infer that *Rbhu* is connected with the summer, *Vibhu* with the autumn, and *Vāja* with the winter. The same idea seems to be also suggested when we are informed that one of them likes fire, another water, and the third one growth or vigour. Considering the derivative meanings and the various deeds of the *Rbhūs* I think that the summer includes the rainy season, the autumn includes the *hemanta* as well, and the *hima* (winter) includes the spring.

I shall now show to what extent the various functions assigned to the *Rbhūs* can be reconciled or appropriately interpreted in the light of the above views. The derivative meanings of the names of the *Rbhūs* are more or less obscure. The dexterity on the part of *Rbhu* may have some bearing on the works of heat in nature. The eminence of *Vibhu* in connection with rains may be related to the harvest supplying provision (hence the superiority over others). The vigour of *vāja* indicates the bodily vigour and strength which occurs in winter.

Sudhanvā, the father of the Ṛbhus, is probably the sign Sagittarius and probably the year-beginning and hence the beginning of the seasons used to be counted from the sign.

The usual works of the Ṛbhus more or less refer to the conditions of the sky and the surface of the earth at the time of the heavy rains with attendant thunderstorms.

The past deeds of the Ṛbhus can also be well interpreted. The parents are none but the heaven and the earth (dyāvā-prthivī) and their rejuvenation means the revival of the luxuriant growth of vegetation on the surface of the earth and the reappearance of the clear blue sky. The Aśvins' triangular car is the triangle formed by the principal stars of the zodiacal constellation *bharaṇī*. Its fashioning perhaps indicates its appearance above the horizon in the clear cloudless sky after the rains. The 'maiden of the sky' is more appropriately the sign Virgo than the 'morning', as interpreted by Śāyana. Being the fourth sign from Aries (*Mesa*), both this and Virgo can be seen at the same time above the horizon. As the Aśvins are intimately connected with ūṣā in many hymns of the Rigveda, Śāyana was led to this conclusion. The appearance of the rains and thunderstorms is indicated by their fashioning of Indra's steed and the bringing down of his bolt. The cow seems to be the cloud and the nectar the rains. In some places the surface of the earth might have been intended by the cow (IV. 33. 4). Tvastṛ's cup, as already interpreted by the oriental scholars, is the moon's disk. This is distinctly indicated when we are told that the cup is brilliant like the day. The division of the cup into two, three, and four pieces may be taken to indicate that the seasons were made to commence with half-moon (first or last quarter) one-third-moon and one-fourth-moon (last two corresponding to crescents, that is, its different phases); and their refashioning of the cup means the formation of the full-moon. The origin of one steed from another and the birth of a beautiful (strong) child evidently refer to the breeding and gestation occurring in some particular season. The separation of the earth from the sky probably indicates the clearing of the sky and hence its clear distinction from the earth after the rains. The making of a shoulder-guard is perhaps the production of bodily vigour (strong arms and shoulders) under the influence of a bracing climate.

The story of the Ṛbhus sleeping in the abode of the sun and their awakening by the dog as the year was at an end leads us to the following astronomical interpretation: (i) The abode of the sun is a part of his apparent circular path through the heaven, that is, the ecliptic. (ii) The sleeping of the Ṛbhus for 12 days in the abode of the sun means that the progress of the season becomes very much slowed or comes nearly to a stand-still. This also indicates the slowing of the sun's journey through the heaven or, what is the same thing, the slowing

down of the speed of the revolution of the earth round the sun. This slowing takes place to the greatest extent in a certain point of the earth's elliptical orbit round the sun known as the aphelion. Seen from the earth the sun is seen to occupy just the opposite point, the perihelion, where the motion of the sun is seen to be greatly slowed down. The slowing of the progress of the season has nothing to do with the winter solstice as held by the oriental scholars. This misapprehension arose from the fact that the perihelion is at present at a distance of few degrees from the winter solstice. (iii) The dog awakening the Rbhus is the brilliant star, Sirius, so well-known to the ancients. (iv) The season was *sarad* at that time, which represented the end of the year. We may now infer that the period in which the actual observation was made was characterized by the coincidence or closeness of the sun's position in the perihelion with the autumn and the heliacal setting of the Sirius. There is reason to believe that the beginning of a year in ancient times was generally counted from an equinox or a solstice; hence we may suppose that the perihelionic position of the sun and the autumnal equinox were more or less coincident at that time. Both the perihelion and the equinoctial points are movable; they revolve in opposite directions. We can find out the approximate time of their coincidence from the following calculation:

The distance of the perihelion from the vernal equinox in Jan. 0, 1900, according to Newcomb is

$$281^{\circ} 13' 15'' + 61.89'' \cdot 03 T + 1'' \cdot 63 T^2 + 0'' \cdot 012 T^3$$

where $T = \text{a century}$.

The position from the autumnal equinox is then

$$281^{\circ} 13' 15'' + 61.89'' \cdot 03 T + 1'' \cdot 63 T^2 + 0'' \cdot 012 T^3 - 180^{\circ} \\ = 101^{\circ} 13' 15'' + 61.89'' \cdot 03 T + \text{etc.}$$

Taking the motion of the perihelion $16'' \cdot 89$ for a year and calculating backwards the number of years for the arc of $101^{\circ} 13' 15''$, we find that the perihelion and autumnal equinox coincided some 5887 years ago, that is, in 3987 B.C.

The position of the vernal equinox at the above epoch, taking the approximate annual motion of the equinoxes to be $50'' \cdot 25$, was

$$5887 \times 50'' \cdot 25, \text{ or } 82^{\circ} 101' 2''$$

behind the present position. As the present position of the vernal equinox is placed in the sign *Piscis* at a distance of $18^{\circ} 44'$ from the beginning of the sign *Aries*, its position at the above period was

$82^{\circ} 10' 21'' - 18^{\circ} 44'$ or $63^{\circ} 26' 21''$ behind the beginning of the sign *Aries*. This corresponds to the beginning of the sign *Gemini*. The star *Sirius*, placed at about 82° from the beginning of the sign *Aries*, used to appear in the sky in the evening

at about the end of the year. The autumnal equinox was placed in the beginning of the sign Sagittarius and used to indicate the end and beginning of the year.

2. *Ṛtu*.

One complete hymn (I. 15) is dedicated to *ṛtu*, where most of the eminent deities have been asked to drink Soma with her (*Ṛtu*) in addition. Mentioned in more than thirty passages she is Soma's mother (II. 13. 1). The sun is a division of *ṛtu* (II. 38. 4). Agni (V. 12. 3; X. 2. 1.), Indra (III. 47. 3; X. 99. 10), *Ṛbhus* (IV. 34. 7), and the sun (III. 20. 4) are called the originators or masters of *ṛtu* (*ṛtupā*). The sun and moon have arranged for her (X. 85. 18). Day after day and *ṛtu* after *ṛtu* are passing (X. 18. 5). In one passage (VII. 103. 9) it is said that the frogs do not envy the twelve *ṛtus*; when the rainy season comes after the year is over, the frogs, having suffered from the summer heat, come out of their holes (VII. 103. 9).

There are other passages where *ṛtu* is used for 'time'. This use is confined to the hymns of the tenth maṇḍala. But, considering the above passages, one is justified in thinking that the word was originally used to mean 'month'. Only in later times the sense was changed for time in general. It does not seem to have been used for 'season' in any place.

We have *numerous* references to *ṛtus* as seasons (five or six number) in the Brāhmanical literature.

V. PLANETS.

1. *Planets in general.*

There are several passages in the Rigveda which seem to refer to planets.

In VIII. 14. 9, the stars (*tārakā*) are said to have been fixed and made immovable by Indra. On the contrary, there is mention of moving luminous bodies in the firmament (heaven). In I. 37. 9, we are told that the firmament is fixed; the *birds* can fly through it. Again, Varuṇa is said to know the track of birds flying in the firmament and of the boats flying in the ocean (vast sky) (I. 25. 7). Puṣan's golden boats ply in the heaven (VI. 58. 3). In all these passages, the birds and boats may be taken for planets. There are two other terms, *ukṣā* and *adhvaryu*, which may refer to planets again. *Ukṣā* means one which sprinkles or emits (spark or light). *Adhvaryu* means one who lights the sacrificial fire—secondarily, one who lights fire in the heaven, which glitters in the heaven. In III. 7. 7, we are informed that the seven Brāhmanas are guarding their favourite place with five Adhvaryus; and that the immortal Ukṣās of the sky are regularly moving towards the east. Again, in I. 105. 10, we are told that the five Ukṣās which move in the sky have their motion stopped now. In the first of these two last passages, I take the seven Brāhmanas as the constellation Great Bear (*Saptarṣi*). The five Adhvaryus may be the five planets (see Hillebrandt: *Vedische Mythologie*, pp. 3, 423). In the second passage, we have reference to the stationary position or retrograde motion of the planets. Lastly, the earth has been qualified as *Ukṣā* (IV. 56. 1, 2). Hence she might have been taken as one of the planets.

The two deities Brhaspati and Vena, considered below, perhaps represent Jupiter and Venus.

2. *Brhaspati.*

Brhaspati is invoked in some eleven hymns and in part of another hymn. In two hymns he is praised with Indra. Altogether, he is mentioned or enlogised some hundred and seventy times or more. He seems to be closely connected with Agni (I. 38. 13; III. 26. 2; etc.).

Brhaspati is the same deity as Brahmanaspati, as he is addressed in II. 23, by both the names.

Brhaspati is seven-mouthed (IV. 50. 4), seven-headed (X. 67. 1), and seven-rayed (IV. 50. 4). He is hundred-winged (VII. 97. 7). All these epithets seem to refer to his brilliancy.

He is distinctly called bright (I. 190. 1; III. 62. 7), bright like a meteor (X. 68. 4) and ruddy and golden-coloured (V. 43. 12). His close relationship with Fire may have something to do with these characters. He has a beautiful tongue (I. 190. 1; IV. 50. 1). He is clear-voiced (VII. 97. 5). He is great (I. 190. 8) and mighty (I. 190. 3. 8). He is blue-backed (V. 43. 12).

Of the implements, Brhaspati has a bolt (I. 40. 8; II. 30. 9), a bow with arrows (II. 24. 8), and a golden axe which Tvaṣṭr sharpens (X. 53. 9). His car is bright, cleaves the clouds (*gotrabhid*), and knows the heaven (II. 23. 3). His steeds are ruddy (VII. 97. 6).

Brhaspati's abode is beautiful (VII. 97. 7) and is situated in a luminous region (VI. 73. 1) at a very high distant place (V. 50. 3). Again he is said to have three abodes (IV. 50. 1).

Brhaspati is the father of the gods (luminaries) (II. 27. 3; IV. 50. 6). He is the eldest (*jyestha*). Rodasi (Heaven-earth) is his mother (VII. 97. 8). He was given birth to by Tvaṣṭr (II. 23. 17). He was born first (VI. 73. 1) and was born by divine law (X. 67. 1). Again, he is said to have been born first in the high space of the luminous region (IV. 50. 4).

The deeds of Brhaspati are closely similar to those of Indra. He destroys darkness (II. 23. 3; X. 68. 5), cleaves the clouds (II. 24. 4; VI. 73. 1), causes rainfall (I. 190. 1, 8; VI. 73. 1; etc.), and loosens the fixed ones and uproots them (II. 24. 3). He rent Vala (IV. 50. 5; II. 24. 3), and killed the Sambaras (II. 24. 2), Vṛtras (VI. 73. 2) and helped Indra in killing the followers of Kṛṣṇa (VIII. 96. 15). He opened up the rocky door with the help of the noisy geese (probably the Maruts) (X. 67. 3). He opened the door for the downpour of rain in the autumnal months (II. 24. 5). He released the cows (light) from inside the mountains (darkness) (II. 23. 18; IV. 50. 5; X. 67. 4; X. 68. 2; etc.). When the multiform water (*viśva-rūpaṃ vājam*) became agitated, Brhaspati ascended to the upper part of the heaven; the various luminaries praised him (X. 67. 10). Like many other deities, Brhaspati is regarded as having made the ends of the earth steady (IV. 40. 1). He is also called the lord of a flock (gods ?) (II. 23. 1). Several minor deeds are also assigned to him (I. 18. 2; etc.).

Brhaspati is regarded as the presiding deity of the asterism Tisya (Pusya) (Taitt. Sam. 4. 4, 10. 1; Taitt. Br. I. 5. 1, 2; 3. 1. 1, 5; Vedāṅga-jyotiṣa).

Macdonell (*Vedic Mythology*, pp. 103-4) has discussed the views of all the oriental scholars. Macdonell remarks that he was a representative of Agni at first, later became the deity of Tisya and in post-Vedic times as the planet Jupiter.

I can find no reason why we should not regard him as the planet Jupiter even in the Vedic times. The characteristics of Brhaspati lead us to this conclusion. He stands next to

Venus in brilliancy. His characteristic deeds evidently refer to his rising in the sky during the summer monsoon.

3. *Veṇa*.

This deity is invoked in a single hymn (X. 123. 1), although the name occurs several other times in the Rigveda. In the singular, it has been used to qualify the sun (I. 83. 5), Indra (I. 61. 14), and Brhaspati (I. 139. 10), signifying brilliancy or beauty. It has also been used in the same sense in the plural in several other passages (I. 56. 2; IX. 64. 11; IX. 73. 2; etc.).

Veṇa is a messenger of *Varuṇa* (X. 123. 6). He has a bright appearance and his back (or surface) is seen (I. 123. 2). He is also called bright-wombed (X. 123. 1). He has bright wings (X. 123. 6, 7). He holds a spotted weapon and has a shining armour (X. 127. 7).

Veṇa remains brilliant on the top of the sky (X. 123. 2) where he travels (X. 123. 3). He is reddish in colour (IX. 21. 5). He is said to be one remaining in the womb of the spotted (heaven) (X. 123. 1). He arises in the sky and wanders in a high place (X. 123. 7). He is a swift mover (X. 123. 8). He is called a celestial musician (X. 123. 4, 5), and is said to roar like a buffalo (X. 123. 4). *Veṇa* is also connected with lightening (*apsarā*) as his lover (X. 123. 5). He is again called a pourer (of rain ?) (X. 123. 8).

Veṇa is connected with the moon in two passages. The moon is said to order *Veṇa* (IX. 21. 5). *Veṇa* remains in the heaven of the moon above the sky (VIII. 63. 1).

There is a passage (IV. 58. 4) in which we are told that Indra brought out the luminous bodies that were concealed in three places in the clouds (*goṣu*). Again, we are told (X. 123. 8) that, when *Veṇa* makes his appearance by his brightness in the firmament, the sun illuminates the third world (third part of the sky) with his white light.

Taking into account his brightness, place in the heaven, and connection with the moon, I regard *Veṇa* as the planet Venus. The close similarity in name and identical significance in their derivation (see *Century Dictionary*, word 'Venus') are confirmatory evidences of this view.

VI. STARS, ASTERISMS, AND CONSTELLATIONS.

A. Deities connected with Stars.

1. *Aja Ekapāt*. The name of the deity occurs six times (II. 31. 5; VI. 50. 15; VII. 35. 13; X. 64. 4; X. 66. 11). He has been invoked five times with Ahirbudhna, thrice with the sea, twice with the earth, and once with several other deities, as the sun, fire, *Prṣṇi*, *Bṛhaspati*, river, sky, roaring cloud, *Sindhu*, *R̥bus*, *Āpa*, and *Sarasvatī*. In one passage (X. 65. 13) he has been called a roarer and one provided with the thunderbolt (*pāvīrabī*).

The name also occurs in the White and Black Yajurvedas. In Vājasaneyī Saṃhitā (5. 35) Aja Ekapāt and Ahirbudhna have been designated as *gārhapatya* Fire, but in Taittirīya Saṃhitā (1. 3. 3) Aja Ekapāt has been so called and Ahirbudhna as dakṣina (southern) Fire.

In Atharvaveda (XIX. 11. 3) we are told that *Rohita* (the sun) gave origin to the heaven and earth and that Aja Ekapāt was placed there.

The name of the deity also occurs in the Brāhmanas. In Taittirīya Brāhmaṇa (3. 1, 2, 8) the sun has been called Aja Ekapāt and in two other places of the same work (1. 5. 1, 5; 3. 1, 2, 9) we are told that Proṣṭhapada is placed on the east of Aja Ekapāt and Ahirbudhna on the north of Proṣṭhapada. In Śatapatha Brāhmaṇa (8. 2, 4. 1) we are told that the goat climbed up after having become one-footed.

In Mahābhārata (I. 121) Aja Ekapāt, Ahirbudhna, and Mrgavyādhā have been counted amongst the eleven Rudras.

Yāska in his Nirukta (12, 30) says that Aja Ekapāt is one who walks with one leg or one who protects or drinks with one leg. The author of Nighaṇṭu (5, 6) regards him as a deity.

In Yājuṣa-jyotiṣa (Sl. 10) and Āra-jyotiṣa (Sl. 9) we get the names in place of the asterisms Pūrva-proṣṭhapada and Uttara-bhādrapada. Again Aja Ekapāt has been regarded as the lord of Pūrva-bhādrapada (same as Pūrva-proṣṭhapada) and Ahirbudhna as that of Uttara-bhādrapada. In Pitāmaha-siddhānta (an old astronomical work) we find the names of Aja and Ahirbudhna after Dhanīṣṭhā in the list of asterisms with a north latitude (that is, placed north of the ecliptic). In Vṛddhavaśiṣṭha-siddhānta (Ch. 8, Sl. 8) we are told that the two Ajapadas are placed on the north, evidently referring to Aja Ekapāt and Ahirbudhna. In another place (Ch. 8, Sl. 20) we find that Ahirbudhna does not disappear under the sun's rays (that is, it is placed higher up from the path of the sun). In Soma-siddhānta (4, 6, 32) and Sūrya-siddhānta (8, 16) we

find the two Bhādrapadas mentioned in place of Aja Ekapāt and Ahirbudhna.

Roth and Boehtlingk (in their *Wörterbuch*) thinks Aja Ekapāt as the one-footed lord of the storm. Bloomfield, Victor Henry, and Wallis (in his *Cosmology of the Rigveda*, p. 54) take him as the sun. The view must have been derived from the *Taittirīya Saṃhitā*. Hardy calls him the moon. Bergaigne thinks him some isolated, hidden or unintelligible dweller on land. Macdonell regards him as the personification of lightening (*Vedic Mythology*, pp. 73, 74).

Considering what we find in the above-mentioned works, I am unable to accept any of the above views and from the evidences we have in the *Brāhmanas* and the astronomical works I am led to the view that the two deities in question represent two stars.

We see that, at the time when the *Yājusa-jyotiṣa* and *Āraajyotiṣa* were composed (or compiled), *Pūrva-bhādrapada* and *Uttara-bhādrapada* were respectively known as Aja Ekapāt and Ahirbudhna.

In *Taittirīya Saṃhitā* (4, 10, 13) and *Maitrāyaṇī Saṃhitā* (2, 15, 20) two asterisms named *Proṣṭhapadā* are mentioned in their list; in *Kāthaka Saṃhitā* (39, 13) the two asterisms are named *Proṣṭhapadā* and *Uttara-proṣṭhapadā*. Again in *Taittirīya Brāhmaṇa* we find mention that *Proṣṭhapada* is placed on the east of Aja Ekapāt and Ahirbudhna on the north of *Proṣṭhapada*. The two *Proṣṭhapadas*, according to the later astronomical works, are the *Pūrva-* and *Uttara-bhādrapadas*. Each of the two asterisms consists of two principal stars, one of which forms the junction-star. The junction-star of the *Pūrva-bhādrapada* is α Pegasi; it is placed on the south; the other star is β Pegasi, placed on the north. The two stars of the *Uttara-bhādrapada* are α Andromedae (on the north) and γ Pegasi (on the south). The *Pūrva-bhādrapada*, again, is placed on the east of *Uttara-bhādrapada*. If the four stars of the two asterisms are joined together we get a four-sided figure. Following the view of *Taittirīya Brāhmaṇa*, we consider Aja Ekapāt as α Pegasi. The *Proṣṭhapada* of the same work, viz. γ Pegasi, is placed on the east of α Pegasi. α Andromedae, placed on the north of α Pegasi, is Ahirbudhna.

I shall now try to explain the meaning of the name of Aja Ekapāt. We know that the sign Aquarius is partly formed by three-fourths of *Pūrva-bhādrapada* and the sign Pisces is formed by one-fourth of *Pūrva-bhādrapada* and the whole of *Uttara-bhādrapada*. The sign Capricornus (*Makara*) is placed before Aquarius. Although the Hindu figure of the sign Capricornus is represented by a fish-like animal with a long proboscis, the figure according to ancient Babylonian, Greek, and Arabian astronomy consisted of the front half of a goat with two front legs above and the hinderhalf of a fish below (as the name suggests).

It is highly probable that the two legs of the goat were made to extend in such a way that the stars α Pegasi and α Andromedae were placed, one on each leg. We can thereby understand why the two stars were called Ajapadas in the *Vṛddhavaśiṣṭha-siddhānta*. The change of the name to *Prosthapada* (which means the leg of an ox or of cattle in general) makes us believe that the original figure of the goat was later changed to an ox or to cattle in general.

Lastly, we come to the interpretation of the attributes of Aja Ekapāt. His attributes as a roarer and the holder of the thunderbolt and his praise with the river, sea, and dusty earth lead to the idea that he was closely connected with storms and rains. In the ancient western astronomy we find that the sign Aquarius represents the sun as giver of rains and producer of storms. Thus we can easily understand why the deity is connected with storms and rains. We further know that in northern India the summer solstice is connected with storms and rains. In such a case we may think that the hymn was composed from observations taken at the time when the summer solstice was passing through the sign Aquarius which used to rise in the heaven at night with the stars α Pegasi and α Andromedae appearing at the eastern horizon. This happened sometime between 2000-2500 B.C.

In this connection we may mention that the phrases *dero-dhātū sindhū* and *samudriya Āpaḥ* in X. 65. 13, seem to refer to celestial and not to earthly objects. The first phrase signifying 'Sindhu (river) supporting the heaven' probably means the long branching milky way. The other phrase meaning 'Āpaḥ belonging to the sea' indicates a star of the same name (see Āpaḥ).

2. *Apām Napāt*. The deity has been invoked in one complete hymn (II. 35) and in one verse (V. 41. 10). The name also occurs in four other places (I. 143. 1; III. 5. 3; VIII. 44. 16; V. 8. 5) where the term has been used to qualify Fire. This use, as we shall see below, has some important significance regarding the physical nature of the deity *Apām Napāt*.

We are informed of certain characteristics of the deity. He has been called a roarer (II. 35. 1). He is brilliant (II. 35. 3, 4, 7, 9, 11, 13), gold-like, and of a golden colour (II. 35. 10). His rays are beautiful (II. 35. 11). He is also called *āśuhemā*, that is, spreading (brilliant) like gold. He is placed above the firmament (II. 35. 9) and his abode is in the high region (II. 35. 14). He sits on the place made of gold (II. 35. 8). He feeds on nectar (II. 35. 5). It has been said that the Horse and *Apām Napāt* were born high up (in the heaven). *Apām Napāt* is found to be connected with water in various ways: He is full of water (II. 35. 8). He is the womb of the showerer (V. 41. 30). He, being filled with water, becomes pregnant in water and (again) tastes or drinks the same water as a child

(II. 35. 13). He is surrounded by water (II. 35. 3, 4, 7-9). The waters meet (with one another); others come to meet with them; and they equally satisfy the watery place formed into river (II. 35. 3). The waters, having a tendency to run together, make Apām Napāt brilliant in the firmament (II. 35. 3). The waters are golden in colour and their course is crooked (II. 35. 9). Three goddesses hold the food of Apām Napāt: they are as though made of water and they move in water (II. 35. 5). The cow of Apām Napāt is a milk-giver and bestower of rain (II. 35. 7). The other worlds are the branches of Apām Napāt (II. 35. 8). The herbs grow for him.

We do not find the name of Apām Napāt in the Brāhmaṇas. In Nighantu (5. 4) he is regarded as the grandson of Apaḥ. He is considered as the god of the middle region.

In the ancient astronomical works of the Hindus (Vṛddha-vaśiṣṭha-siddhānta 8. 12: Brahma-siddhānta 2. 177; Soma-siddhānta 4. 6. 12; Sūrya-siddhānta 8. 21), we get mention of a star, named *Apām Vatsa* (θ Virginis); this is placed in the sign Virgo. The sign Virgo is characterised by numerous nebulae, many of which can be seen with the naked eye. The modern constellation figure of the sign is that of a virgin holding a bunch of wheat in the left hand. 'In Egypt, Virgo was associated with Isis and it was reported that she formed the Milky Way by throwing millions of wheat-heads in the heaven.' Sometimes she is shown with wings (*Enc. Brit.*, 14th edit., the figure in the article 'constellation'). Again other women used to be also represented with the virgin in the same sign. α and γ Virginis used to represent two goddesses. The virgin was often represented with her daughter (see Whyte's *Constellations and their History*, 1928, pp. 123-7).

In Avesta, we find something about Apām Napāt. He is the god of water and lives in the depth of water. He remains surrounded by women and is invoked with them. He rides on a fast-going horse and holds the light inside the ocean.

I shall now discuss the opinions of the oriental scholars. Spiegel, depending on the versions of the Avesta, thinks him to be some deity connected with Fire. Darmesteter takes him to be the Fire of the lightening produced in clouds. Schroeder is of the same opinion. Oldenberg thinks him to be a deity of water and says that it is by a mistake that he has been taken as Fire arising in water. Hillebrandt and Hardy identify him with the moon. Max Müller thinks him to be the sun or lightening. Macdonell considers him as the Fire in the form of the lightening of the cloud (see Macdonell's *Vedic Mythology*, p. 70). Lastly, Plunket (*Ancient Calendars and Constellations*, p. 129) considers him as 'the fire of water' that is, the fire of the sun passing over the sign Aquarius. He also thinks that at about 3000 B.C. the winter solstice was placed in the sign Aquarius.

We cannot accept any of the above views. Comparing the attributes of Apām Napāt and the physical surroundings of Apām Vatsa we consider them identical. All the attributes assigned to Apām Napāt are easily explained if we take this view. The 'golden place' simply refers to the nebulae in the surroundings. The 'waters' again refer to the same. The 'rivers' represent the Milky Way with its branches. The three goddesses were nothing but three brilliant stars in the surroundings (see above). The 'cow' is nothing but the cloud. The downpour of rain and the growing of herbs evidently refer to the period when the star used to rise on the heaven towards the end of the rainy season at night and hence the vernal equinox must have been placed near the Pleiades (Kṛttikā) at the time of the observation. This happened sometime between 1750-2000 B.C.

Lastly, since we find the deity mentioned in the Avesta, with more or less the same attributes, I believe that the star was recognised at a very early period of Aryan civilization.

3. *Ahīrbudhna*. This deity has been praised in some twelve places, five times with Aja Ekapād and thrice with Apām Napāt.

We do not get any idea of the deity from the Vedas. He has been said to be 'born from water' and to live amongst waters in the firmament (VII. 34. 16). He has been invoked not to cause any harm to the people (V. 41. 16 : VII. 34. 17) ; thus he must have been considered as a malefic deity.

According to Yākṣa (4. 30), Ahīrbudhna is one whose abode is in the firmament (antarikṣa). According to Sāyaṇa, the term signifies 'one going to the firmament.'

Oriental scholars think this deity to be 'a serpent of the Deep'. Maedonell thinks that Vṛtra and Ahīrbudhna were probably the one and the same god but that later they have become differentiated from each other.

We have shown under Aja Ekapād that Ahīrbudhna is the star α Andromedae.

4. *Āpah*. The present deity has been invoked seven times.

She is brilliant (VII. 47. 3 : VII. 49. 2-4) and producer (oozer) of honey (VII. 49. 3). She was born in the firmament (VII. 49. 2). We find the mention of her 'waves' (VII. 47. 2) which arose in the heaven (X. 30. 9). Indra drinks the (water from the) wave (X. 30. 9). She goes through water (VII. 49. 1) and has got medicine (from herbs) and fire in her body (X. 9. 6). Fire has entered the body of Āpa (VII. 49. 4). Varuṇa is her husband (VII. 49. 3). Indra released her once (VII. 49. 1). Varuṇa and Soma live in her abode (VII. 49. 4).

The name of Āpa occurs some forty-seven times in Vājasaneyisaṃhitā in connection with the *mantras* of various sacrifices. In many hymns she has been invoked for various kinds of benefit or gift. In the Atharvaveda, we find the

word more than one hundred and twenty times. The goddess has been invoked several times. The word has also been used for water and for the milky way (heavenly waters) as well. No new characteristics of the deity are, however, available in either of these Vedas.

The term is also found in the Brahmanas. Āpaḥ has been called the life (prāṇa) (Taitt. Br. 3. 2. 5. 2 : Tāṇḍya Br. 9. 9. 4 : Śat. Br. 3. 8. 2. 4 : Jaim. Br., Uttar. 3. 10. 9), the nectar (Śat. Br. 1. 9. 3. 7 : 3. 9. 4. 16 : 4. 4. 3. 15 : Kaus. Br. 12. 1 ; Ait. Br. 8. 20), the well (Śat. Br. 6. 7. 4. 4 : also in Yajurveda 12. 19), the pacification (Śat. Br. 1. 2. 2. 11 ; etc. Ait. Br. 7. 5. Tāṇḍya Br. 8. 7-8 : Kaus. Br. 3. 6-9. Gop.-Br. 1. 25), the medicine (Kaus. Br. 3. 6-9 ; Gop.-Br. 1. 25), the sap of annual herbs (Śat. Br. 3. 6. 1. 7 : 3. 3. 3. 18 : 3. 9. 4. 7), reverence (Taitt. Br. 3. 2. 4. 1), vigorous (Śat. Br. 1. 1. 1. 1 : 3. 1. 2. 10 : 5. 3. 4. 13), pure (Śat. Br. 1. 1. 1. 1 : etc.), milky juice (Tāṇḍya Br. 1. 3. 4. 8), the vaiśya (Kaus. Br. 12. 1), the food (*anna*) Śat. Br. 2. 1. 1. 3 ; etc. : Taitt. Br. 3. 8. 2. 1 : 3. 8. 17. 5 : Kaus. Br. 12. 3. 8 : Ait. Br. 6. 30 : Jaim. Br. Uttar. 1. 25. 9 : 1. 29. 5), destroyer of evil (Taitt. Br. 3. 2. 3. 12 : 3. 2. 4. 2), the bolt (Śat. Br. 5. 3. 4. 1), the sun (*arka*) (Śat. Br. 10. 6. 5. 2), the *Yajña* (Kaus. Br. 12. 1 ; Śat. Br. 1. 1. 1. 12, etc. : Taitt. Br. 3. 2. 4. 1 ; Ait. Br. 2. 20) and the *retah* (seminal fluid) (Ait. Br. 1. 3 : Śat. Br. 3. 8. 4. 11 : etc.). She has been called the wife of Varuṇa (Taitt. Br. 1. 1. 3. 8) and of Agni (Śat. Br. 6. 8. 2. 3). Again Āpaḥ is the favourite abode of the gods (*devas*) (Taitt. Br. 3. 2. 4. 2).

In Yājusaṃyotiṣa (Sl. 18. 33) and Āraṇyaka (Sl. 14. 26), the Pūrvāsādhā nakṣatra is called 'Āpa' and again she has been termed the lord of Āpaḥ. In Pīṭamahāsiddhānta, the word 'āpa' has been used for the same asterism. In Soma-siddhānta (4. 6. 4) the position of Āpa has been given with regard to *Abhijit*. In the same work (4. 6. 12) as well as in Brahmasiddhānta (2. 178) and Sūryasiddhānta (8. 21), Āpa is stated to be placed on the north of Apām Vatsa.

Āpaḥ has been mentioned in the Avesta as 'Āpo'.

Oriental scholars regard the present deity as the moon (see Macdonell's *Vedic Mythology*).

Following the astronomical works above referred to, we are inclined to take her to represent θ Sagittarius, the junction-star of Pūrvāsādhānakṣatra. The star is placed in the Milky Way.

Now let us see how far we can interpret her characteristics if we accept this view. Her brilliancy is well-explained by taking her to be a brilliant star. The honey she oozes out is nothing but the star-cloud of the Milky Way surrounding her. The waves again refer to the branches of the Milky Way. The idea that the moon lives in her abode is explained by the fact that she is a junction-star. Again the idea that Varuṇa is her husband and lives in her abode is well-reconciled if we assume that the autumnal equinox (which represents Varuṇa

was close to the star at the period of observation. Further, the idea that Indra released her once is very nicely explained if we take Indra to represent the summer solstice. In such a case, the release by Indra simply means that the part of the ecliptic presided over by Indra had once passed through the star but was now replaced by another represented by Varuṇa. Her connection with medicinal herbs is understood since there was autumn at the time, the period of growing of the herbs. The numerous indefinite attributes of the deity recorded in the Brāhmanas are also explained if we adopt the present view.

5. *Tvaṣṭṛ*. This deity has been mentioned in some thirty-seven hymns.

Tvaṣṭṛ has been called *Viśvarūpa* (omniform or having the beauty of the world) (III. 55. 19). He has also been addressed by another name *Nestṛ* (I. 15. 3), a name given to one of the main priests in a Soma-sacrifice.

Tvaṣṭṛ has a wife (X. 66. 3) and is the father-in-law of *Vāyu* (VIII. 26. 21, 22). Again he is the father of *Viśvarūpa*, the guardian of cows.

We hear of *Tvaṣṭṛ*'s dexterous hands (III. 34. 20). He holds an iron axe in his hand (VIII. 29. 3) and has a chariot and steeds (VI. 47. 19).

Tvaṣṭṛ is a skilful workman (I. 85. 9; III. 54. 12); he fashioned (I. 32. 2; I. 85. 9; V. 31. 4; VI. 17. 10; etc.) and sharpened (I. 52. 7) Indra's thunderbolt. He also sharpens the iron axe of *Brahmaṇaspati* who makes the cup by its aid (X. 53. 9).

We are informed of some of his deeds. Thus he makes the people long-lived by remaining in company with them (X. 18. 6). He develops the germ in the womb and shapes the human and animal forms (I. 188. 9; VIII. 91. 8; X. 184. 1). He has been invoked to bestow vigorous sperm (to male) for the generation of strong offsprings (III. 4. 9; III. 55. 19) and to give brave sons (VII. 34. 20). *Tvaṣṭṛ* fashioned a new cup (I. 205) which contained the food for the *Asuras* (I. 110. 3) or the beverages of the gods (I. 161. 5; III. 35. 5). He begot *Bṛhaspati* (II. 23. 17). *Tvaṣṭṛ*, along with the Heaven and Earth, the Waters and the *Bhṛgu*s, generated *Agni*.

Tvaṣṭṛ remains in company with the gods' wives (II. 31. 4; II. 36. 3); when he found his cup divided into four pieces (by the *Rbhus*), he concealed himself among the women (I. 161. 4). He appears in many places of the world (VI. 47. 19).

Indra drank the Soma juice in *Tvaṣṭṛ*'s cup by force (III. 48. 4) and by defeating him (IV. 18. 3). *Tvaṣṭṛ* trembles for fear of Indra's wrath. He was crushed by Indra who seized him by the foot (IV. 18. 12).

We are also told that the light (darkness-destroying energy) of *Tvaṣṭṛ* was caught (was concealed) in the moon's disk (II. 84. 15).

A story is told of the marriage of *Saranyu*, the daughter of *Tvaṣṭr* (X. 17. 1, 2). The whole world came to the occasion of the marriage of *Saranyu*. When she (the mother of Yama) was married to the sun, she disappeared. When the immortal (lady) was concealed from the mortals, a woman of her form (*Savarṇā*) was given to the sun and the Aśvins were born to them. *Saranyu* left the twins.

In later Sanskrit works *Tvaṣṭr* has been identified with the sun. In Kauśika Sūtra he is identified with the sun and Prajāpati as well. In Mahabharat he has been recognised as a form of the sun. In Mārkaṇḍeya Purāṇa he has been identified with *Viśvakarman* and *Prajāpati*.

In Āraṇyaka (sl. 9) and Yāyujyotiṣa (sl. 10) he has been identified with Citrā (the star Spica) in one place and as its presiding deity in another (A.j. sl. 26; y.j. 33).

I shall now discuss the physical basis of the deity.

The name of the deity, derived from the root *tvaks* seems to mean "the fashioner" or "artificer" (see Macdonell's *Vedic Mythology*, p. 117).

Although *Tvaṣṭr* has itself been recognised as a deity in the Rīgveda, still the name has been used in several places to qualify the fire and the sun.

Tvaṣṭr has been regarded as an obscure deity by the Vedic scholars. Different scholars hold different views on the nature of the deity: thus, Kühn, Hillebrandt, and Hardy regard him as the solar deity and they are justified by the fact that the name has been used to qualify the sun in several places. Ludwig considers him as a god of the year. Oldenburg regards him as a "pure abstraction expressing a definite characteristic activity" (*Vedic Mythology*, p. 117).

Considering *Tvaṣṭr* as a definite deity, as he is invoked in the Rīgveda (apart from the term being used for the fire or the sun), we find that no definite idea can be had of his physical nature from the Rīgveda alone. We may, however, form a definite idea of the deity from the fact that he has been identified with the brilliant star Spica (in the constellation of Virgo—*Kanyā*) in the Vedāṅgajyotiṣa. We shall now see how far we can appropriately interpret the various attributes of *Tvaṣṭr* if we identify him with the star Spica.

The Spica has been called the little lancet-bearer (Smyth's *Cycle of Celestial Objects*, Second Edition, 1881, p. 376); *Tvaṣṭr* holds an axe in his hand. The sign Virgo has been credited with the power of producing fruits and animals (*Ibid.*, p. 377). The star Spica has been called the ear of corn, grain, and seed in ancient times (*Primitive Constellations* by R. Brown, Vol. I, p. 65). *Tvaṣṭr* has also been credited with creative powers. *Tvaṣṭr*'s cup is the moon's disk. The defeat of *Tvaṣṭr* by Indra can be well reconciled if we think of a period when the summer solstice (which is associated with rains and thunderstorms in

India—attributed to *Indra*) was passing through the constellation. *Tvastr*'s generation of the fire can be understood when we find that the constellation Virgo is remarkable for the large number of nebulae surrounding the Spica. In fact the constellation has been called "the field of the nebulae (Rev. Charles Whyte's *Constellations and their History*, 1928, p. 127). The epithet that *Tvastr* is the "guardian of cows" may have something to do with the clouds or with the brightness of the star itself which has its figure in the form of a lamp or pearl. The nebulae might have been referred to as the gods' wives. The waters evidently refer to the celestial waters—the milky way. The important evidence we possess is the statement that *Tvastr*'s light has been obscured by the moon's disk. The Spica is a junction star (that is, it comes in conjunction with the moon). In consideration of these facts we may take *Tvastr* as the personification of the star Spica.

Lastly, as regards the story of *Saranyu*'s marriage with the sun, we can identify *Saranyu* with *usā*, the morning. *Savarnā* with the daylight after the sunrise. The birth of the *Āsvins* simply means their appearance in the morning when the story was composed from actual observation.

B. Heavenly Dogs.

Dogs are mentioned in nearly all the Vedas. Although the earthly animals are distinctly meant in some passages, celestial objects seem to be indicated in others.

(1) *Saramā*. The name occurs in six passages and in one complete hymn (as a dialogue between her and the Panis) in the Rigveda. She has been described as one with strong legs (III. 31. 6). From the dialogue between *Saramā* and Panis (X. 108) we find that she was deputed by *Indra* as a messenger in search of cows kept hidden by the Panis under the mountains (X. 108. 7). She told them that *Vṛhaspati*, Soma, the stones for grinding the Soma plant, the sages, and the learned people had all come to know of the cows concealed by them and threatened them that they would be killed if they did not run away from the place (X. 108. 11). She had to cross a river (*Rasā*) to go to the Panis (X. 108. 2). Then *Indra* broke asunder the mountains and she discovered the cows (IV. 16. 8), where they were confined (I. 72. 8), by their lowing (III. 31. 6). After the cows had been discovered, *Vṛhaspati* killed the Panis and rescued the cows (I. 62. 3). *Saramā* (evidently for the services she rendered) got plenty of food and other articles from *Indra* (III. 31. 6) and the *Angirasas* for her son (I. 62. 3). Lastly, we are informed of the ceremonies performed by the *Angirasas* which proved successful and *Saramā* came to the place of sacrifice and saw the cows (V. 45. 7); we are also told that, on the advent of dawn, *Angirasas* met with the cows and there

was a proper pouring of milk over the place of sacrifice and Saramā was able to see the cows on the right path (V. 45. 8).

We do not find any reference in the other Vedic works.

In Nirukta (2, 24), Saramā is regarded as a ' bitch of the gods '.

Saramā is regarded by Max Müller (*Science of Languages*, 1882. Vol. II, pp. 513-6) as ' dawn ' and the whole myth as a figurative description of a natural phenomenon of the morning. The cows, i.e. the suns rays or reddened clouds were concealed by the Panis, i.e. darkness. At dawn, Indra, i.e. the daylight appeared, fought with darkness, and released the cows. I am unable to accept this view, as it does not take into account such points as the giving of milk by the cows, and Saramā as the bitch of the gods. Further Indra cannot be taken to represent light. A better and more feasible explanation will be offered below.

We shall see that Saramā is the star Procyon of Canis minor. The name *saramā* is derived from *saraya* (Nirukta 2, 24) meaning ' one moving swiftly '. We have also mention of her strong legs. She has been called ' a bitch of the gods ' and is comparable to the dog accompanying a hunter, a practice which holds good not only at the present time, but for bygone days as well. We know that the common and domestic animals had their place in heaven as constellation figures in ancient times. There is a passage in Taittirīya Brāhmaṇa (I. 5. 4) where it is said that Prajāpati created all animals and each of them occupied a star. Hence Saramā may be taken as a star (or a constellation) having the form of a dog or bitch. There is mention of three offsprings of Saramā (Sārameyas) or Dogs which will be discussed below.

Saramā is the mother of the Dogs and we have Procyon as the fore-dog. Saramā had to cross a river to go to the Panis. Procyon ' was supposed to have crossed the " Great Stream " as the Egyptians called the Milky Way, which now lies between him and his brother Canis Major, and hence he appears as " before " the Sirius-dog '. The Euphratian name of Procyon was *Kakkab Pallika* or *Palura* (' the crossing-of-the-water-Dog '). Again ' a circular " object of ivory " figured by Sehliemann (Ilios, p. 601) shows a scorpion (probably with a part of the Milky Way¹) in the centre, a Dog (male) on one side and a Dog (female) on the other '. (Brown's *Primitive Constellations*, Vol. I, p. 279.) Taking these facts into consideration, we may take Saramā to represent Procyon, the female dog. Rasā is the Milky Way. Further, we find in Mahābhārata that Saramā followed *Skanda* (the constellation figure of Orion) in his march. Procyon lies a little way off to the east of Orion and beyond the Milky Way (*Popular Hindu Astronomy*, by

¹ This is our insertion.

Kālinath Mukherji, p. 51). This also leads us to the same idea.

The myth in my opinion seems to be nothing but a vivid representation of the natural phenomenon of the summer monsoon, the rainfall of the hot season attended with thunder-storm. Cows are clouds and their milk is rainwater. Panis were the demons of drought and Indra the god who caused the downpour. Vṛhaspati seems to be the planet Jupiter.

Lastly, we cannot accept the idea of Max Müller that Vedic Saramā is a remnant of Helena; we rather think her to correspond with Hermes, the messenger of the god Zeus.

(2) *Śvan* (*Sārameya*). In the Rigveda, the animal is mentioned in connection with the Rbhus (I. 161. 13). It is said to awaken the Rbhus when they sleep in the abode of the sun at the end of a year. In another place (VII. 55. 2), the dog is addressed as a bright son of Saramā (*Sārameya*) who shows his tooth, which gleams like a lance's point within his mouth when he would bite. Lastly, we are told (X. 86. 4) that, while Indra protects the favourite Vṛsakapi, the Dog, a pursuer of the boar (*varāha*), has bitten his ear.

In the Atharvaveda there are three passages which definitely refer to a celestial Dog (VI. 80. 1-3). They run thus: (i) He flees in the firmament observing all things. We adore the greatness of the Heavenly Dog with this offering. (ii) The three Kālakanjas are set aloft in heaven as they were Gods. I call all these to be our help and keep this man secure from harm. (iii) Your birth is in water, your station is in heaven, your majesty is on earth and in the ocean. We will adore the greatness of the Heavenly Dog with this offering.

It is quite clear from the above passages that the Dog is a heavenly luminous body; further, her birth in water indicates that he is placed in the Milky Way. We have numerous references to a Dog-star Sirius in the astronomy of the West (Whyte's *Constellations and their History*, p. 232; Brown's *Primitive Constellation*, Vol. I, pp. 98, 99, etc.). Sirius lies in the mouth of the constellation *Canis Major*. I identify *Śvan* with *Canis Major*. One of the passages from the Rigveda above referred to (VII. 55. 2) agrees remarkably with one which we quote below from Aratos's *Phenomenon* (pp. 582-5) on *Canis Major* and its tooth-star Sirius. The passage runs thus:

....His portentous jaw

Bears at the end a star which scorches most,

Resplendent; so men it the Scorchers call.

Comparing the two passages we may say that *Śvan* represents the constellation *Canis Major* and its *tooth* the star Sirius. As the terms 'constellation' and 'star' were very loosely used in ancient times and were interchangeable it is quite possible that *Svan* might have represented the Dog-star Sirius as well (see Brown's *Primitive Constellations*, Vol. I,

pp. 278, 285). The boar, pursued by the dog, may be a constellation figure coinciding with the constellation *Lepus* chased by the Dog-star (Brown's *Primitive Constellations*, Vol. I, p. 97). *Vṛṣākapi* seems to be the constellation *Orion* (see p. 100).

We find mention of *Mṛgavyādha* in connection with a myth described in *Aitareya Brāhmaṇa* (3, 33). The story, told briefly, is that *Prajāpati*, lustful of his own daughter, followed her. She assumed the shape of a doe and *Prajāpati* transformed himself into a buck. He approached her. The gods, in order to prevent the evil consequences of this act, created a god, *Bhūta-vat* from their own bodies. *Bhūtavān* pierced *Prajāpati* with an arrow and, having done so, went up (that is, became a heavenly body). He was now named *Mṛgavyādha*; or the hunter of the deer. The female deer became the *nakṣatra Rohiṇī*. The arrow became three-knotted. It thus appears that *Mṛgavyādha* is a celestial body. It is mentioned as a star in *Soma-siddhānta*, *Brahma-siddhānta*, and *Sūrya-siddhānta* and its position, there given, makes it identical with the star *Sirius*. It is also known as *Lubdhaka*. Thus, whereas *Śvan* represents the constellation *Canis Major*, its tooth-star became later on known as *Mṛgavyadhā* or *Lubdhaka*, and is the Dog-star *Sirius*. The three knots of the arrow seem to be the three stars on the belt of *Orion*.

(3) *Yama's Dogs*. In the *Rigveda* there are two passages where we have mention of *Yama's* two dogs (X. 14. 10, 11). In the first passage, the dead is directed to go to the place of the two dogs, that are four-eyed and variegated in colour. In the second passage, the four-eyed dogs are mentioned as two messengers of *Yama*, guarding the path to his abode. In the *Atharvaveda* the same two passages are repeated (18. 2, 11, 12). There is a third passage (8. 1. 9) where *Yama's* dogs are called road-defenders.

Considering the physical nature of *Yama* (to be discussed) his Dogs must also be some celestial bodies. The two Heavenly Dogs known to the ancients have been identified with *Saramā* and *Śvan*, so that this pair must be some other body represented in heaven. As *Yama's* dogs remain as a pair and guard the path of the dead to *Yama's* abode, and as the dead fathers are the presiding lords of the asterism *Vicrta*¹ (the two *Vicritas*—stars λ and ν *Scorpio* lying side by side), also known as *Mūla* in astronomical works, we may take the two dogs of *Yama* as the two above-mentioned stars of the asterism *Mūla*. The name *vicrta* means one which 'opens' or 'loosens' and thus the *Vicritas* may be openers of the gate of *Yama's* path. Now, why are *Yama's* dogs four-eyed? There was a Semitic myth that the 'solar *Merôdakh* had four

¹ *Taitt. Sam.* 4. 4, 10.

divine dogs'; 'this number is not accidental, but represents the flow of light from the Diurnal-sun to the four quarters' (Brown's *Primitive Constellations*, Vol. I, p. 277). Here, too, the four eyes may refer to four quarters. The name Mūlā of the asterism (signifying one at the base or root) was perhaps given to it from the fact that the autumnal equinox was passing through it at this time and it thus formed the starting point of that half of the sun's path which lay to the south of the celestial equator. As the autumnal equinoctial point represents 'due west', we can easily determine the other directions from it. Thus the four eyes of Yama's dogs were recognised, looking at and pointing out the four directions.

In this connection we may consider why the fathers are made presiding deities of the two asterisms, Maghā and Mūlā (Taitt. Sam. 4. 4. 10). When the vernal equinoctial point was placed near the Pleiades (Krittikas), Mūlā used to rise at sunset and Maghā after midnight during the winter (near about the winter solstice). The period of bitter cold has the highest death-rate particularly among the aged. Further, the vitality of sick and debilitated people become more or less lowered at night, specially after nightfall and after midnight: and thus they become more susceptible to death at these two periods of time. Consequently, the rising of these two asterisms were thought to be inauspicious causing the death of the people. It is for this reason, in my opinion, that the dead fathers were made their presiding gods.

(4) *Kālakanjas*. We have already alluded to the Kālakanjas in a passage of the Atharvaveda (6. 80. 2). Although nothing more is found here, we have a story about them in Taittiriya Brāhmaṇa (1. 1. 2. 4-6). The story runs thus: There were *asuras*, *Kālakanjas*, by name. They built a fire-altar in order to gain the world of heaven. Every man added a brick to it. Indra, in the disguise of a Brahmana, put a brick on for himself saying 'this is *citrā* by name'. They climbed up to heaven. Indra, however, pulled out his brick and they fell down and became spiders. Two of them flew up and became two Heavenly Dogs. The same story is narrated in Śatapatha Brāhmaṇa (2. 1. 2. 13-17) in a slightly different form. The name of the altar is given here as *Rauhiṇa*. There is also an allusion to this story in the Rigveda (II. 12. 1), where Indra, the thunder-holder, is said to have rent the Rauhiṇa into pieces, when climbed (by the asuras) to get to heaven. Now, there are two stars, a little way to the north of Citrā (Spica) which are named Asterion and Chara, forming a small constellation, Canes Venatici, introduced by Hevelius in the 17th century. There is a star cluster near the southern edge of the constellation. The constellation is illustrated as two greyhounds held by a leash in the hand of Bootes (another neighbouring constellation). (Whyte's *Constellations and their History*, p. 163.) The

two Kālakanjas who flew up and became dogs may be the two hounds representing the two stars of the constellation (K. Mukherji's *Popular Hindu Astronomy*, p. 53). The star cluster may be made to represent the spiders. It is, however, remarkable that the myth of the Ancient East should be explained by a new constellation that was erected as late as the 17th century : this may be a simple coincidence, or Hevelius may have had his materials from the East.

The import of the myth is very obscure. The formation of a *fire-altar* gradually built up and its sudden breaking down suggest to us the gradual approach of a comet and its disruption. Such an event has been more than once witnessed by modern astronomers. The agency of Indra in its renting into pieces and the formation of one of its bricks by Citrās make me believe that such a disruption, if it actually took place, must have occurred close to Citrā with the summer solstice passing nearabout.

C. Deities connected with Lunar Asterisms.

1. *Aryaman*. The deity has been invoked some seventy-seven times. He is closely associated with Mitra and Varuṇa, as the latter (two) deities have been invoked sixty-six times with Aryaman. Indra has been praised eleven times with him.

In spite of the fact that Aryaman has been praised in so many places, very few of his characteristics have been revealed to us. He has a milk-giving cow (I. 139. 7). He becomes a benefactor with the help of Fire (I. 141. 9) and protects the honest like Fire (I. 186. 2). He takes the side of (that is, supports) Fire's daughter (V. 3. 2). He is one of the sons of Aditi (I. 41. 3-7; V. 67. 1). Aryaman, Mitra, and Varuṇa remain always associated with one another (VIII. 26. 11) and protect (us) together (VIII. 27. 17). Their works are of the same nature (II. 27. 2). They praise the sun in association with Aditi (VII. 38. 4). They have created the autumn (year), month, day, night, sacrifice, and rks (VII. 66. 11). Again we find that Aryaman has been praised for providing a new wife, once with Bhaga (X. 85. 23) and once with Bhaga and Savitṛ (X. 85. 36). Soma has been compared with Aryaman and Mitra and Varuṇa.

The name of Aryaman occurs in Vājasaneyisaṃhitā, the passages being mostly quoted from the R̥gveda. In Taittiriya Saṃhitā we are told that Aryaman, Mitra, and Varuṇa hold the three worlds and the three heavens (2. 1. 11). Again he has been identified with the sun (2. 3. 4). In Atharvaveda, Aryaman has been invoked for benefit in general, to prevent ill-luck, in marriage ceremonies (XIV. 1, 50; XIV. 2, 13), to provide a wife or husband (VI. 60. 1), to remove ill omens on the part of a woman (I. 18. 2) and in the *mantras* for an easy

delivery (I. 11. 1). He has again been called the grandfather of lac (lāksā) (V. 5. 1).

In Taittiriya Brāhmaṇa (2, 3, 5. 4) Aryaman has been called the sacrificial fire (*Yajña*); again he has been said to be provided with beasts (3. 1. 4. 9). In Śatapatha Brāhmaṇa (5. 5. 1, 12) we are told that the path of Aryaman is placed above the high directions (regions) of Bṛhaspati.

In Āraṇyaka (sl. 14, 25) and Yājñajyotiṣa (sl. 18, 32). Aryaman is regarded as the lord of Uttaraphālgunī nakṣatra (the junction-star being β Leonis). In Pitāmaha-siddhānta and Vṛddhavasistha-siddhānta (8, 18) we find the word 'aryaman' in place of Uttaraphālgunī.

Aryaman (as Airyēma) has been praised in the Avesta. Thus, in Vendidad (20, 24) he is said to have produced evil corruptions in the bodies of men; further (20, 26) he is invoked to give joy to men and women of Zarathustra. Again (22, 23) we get the mention of the dwelling of Airyama; he is asked to heal (the sick person) (22, 25); he is also called lustrous (22, 52). We find prayers for him in Yaśna (53. 1-3) and Khordah-Avesta (18. 2, 2, 7).

We do not get any definite views from the oriental scholars of the physical nature of the present deity. According to Sāyana (in his commentary on I. 90. 1) he is the sun who is the lord of the division into day and night; again, in another place, he calls him the deity of the junction of the day and night. Considering Mitra and Varuṇa as the day and night, Śatyabrata Sāmaśramī (a commentator on the Rigveda) considered the sun before midday as the present deity.

The Uttaraphalgunī nakṣatra forms one-third of the sign Leo and two-thirds of the next sign Virgo. The sign Leo, was named A-rū in the Euphratian list and Aryiah in Hebrew (Brown's *Primitive Constellations*, Vol. I, p. 62). There seems to be every probability of the identity of A-rū and Aryiah on one hand and Ārya on the other. Further the term *aryaman* may be made to mean 'one forming (or having) the lion'. In ancient times the sign held a close relationship with the sun (Whyte's *Constellations and their History*, p. 121). Whyte holds that the place of the sun at the summer solstice was in this constellation at the time the star groups were recognised (p. 120). Again, the sun is the presiding deity of the sign Leo. All these facts help to explain why Aryaman has been made to represent the sun. The Fire with which our deity is connected in some of his attributes probably represents the sun (the celestial fire). The 'daughters of fire' are probably the brilliant stars, as α , γ , δ Leonis, etc. in the neighbourhood. The sign Leo is probably meant by calling him one 'provided with beasts' (or probably the lord of beasts).

We have seen that Aryaman, Mitra, and Varuṇa are praised together in a large number of hymns and that it is distinctly

stated that they are always associated together. We come to know from the ancient astronomical works of the Hindus (Yājuṣajyotiṣa, sl. 10, 33, 34; Arcajyotiṣa, sl. 9, 26, 27; Pitā-maha-siddhānta : Brahma-siddhānta 2. 174 ; Soma-siddhānta 4. 6, 34 ; Sūrya-siddhānta 8. 18) that Mitra is the presiding deity of Anurādhā (the junction-star of which is β or δ scorpionis) in the sign Scorpio and Varuṇa the lord of Śatabhiṣā (the junction-star of which is λ Aquarii) in the sign Aquarius. Thus the reason why they are closely associated seems to be due to the fact that the three asterisms could be seen as the same at night. We know that Anurādhā is placed at about a distance of 77° from Uttara-phālgunī and Śatabhiṣā at about a distance of 170° from the latter, and thus they together occupy less than half the circle of ecliptic (360°). Thus arranged, the three asterisms could be seen together above the horizon during some part of night for more than five months continuously.

We also find that the deity is connected with matrimonial ceremonies and that the attributes referred to in the Atharva-veda and Avesta are all related to the spring. Now spring extends for three months from the vernal equinox to summer solstice in the counting of four seasons or two months thereabout (or ending in the summer solstice) in the counting of six seasons. We find, that Spica (Citrā) in the sign Virgo (placed behind Leo) used to be held as the spring star by the Chinese in ancient times (Whyte's *Constellations and their History*, p. 124) ; and we have already referred to the position of the sun in Leo in the summer solstice in ancient times (the summer solstice being placed in the beginning of the sign Leo about 4,500 years ago). We thus see why the deity in his attributes is connected with spring.

Having seen that the summer solstice was placed near the asterism at the time when the observations were made, we can easily explain his 'milk-giving cow' as the 'rain-giving cloud' and his leadership in the giving of water.

Thus we may take Aryaman to represent Uttaraphālgunī or its presiding deity. Perhaps he is also more or less related to the winter solstice.

2. *Dhātṛ*. This deity has been mentioned about nine times in the Rigveda. In one place (X. 82. 2) Viśvakarman has been called *dhātā*, evidently meaning creator (or supporter) of the universe. We also find him invoked with Indra and Vidhātṛ, but oriental scholars take Dhātṛ and Vidhātṛ to qualify Indra (X. 167. 3). He is said to have created, in proper time, the sun, moon, heaven, sky, and earth (X. 190. 3). Again he has been called the creator (supporter) of the creators (supporters) and the lord of the world and the protector (trātṛ) (X. 128. 7). Then again, he has been invoked to be propitious to the sages (VII. 35. 3), to give protection to the eyes with Savitr and the Mountain (X. 158. 3) ; and to support the gravid

womb of women (X. 184. 1), while Viṣṇu is asked to make the women fit for conception, Prajāpati to make the semen discharge, and Tvaṣṭr to develop the foetus. Lastly, he has been invoked in the marriage ceremony to give affection between the married couple (X. 85. 47).

In White Yajurveda, the deity has been mentioned about five times. Once he has been called liberal (8, 17) and in another place (17, 26) he has been designated as mighty in disposition.

In Black Yajurveda, Dhātṛ has been mentioned for some thirteen times. He has been called a giver (1. 4. 44). He is said to have established the fire and represent the year (1. 5. 1). Dhātṛ with six syllables won the six seasons (1. 7. 11). He is the lord of the offspring and wealth, and is the ruler and creator of the world (3. 3. 1). Again, he is the lord of food and gives food to the baby as it is born (5. 3. 4). We are also informed of his lordly power (3. 3. 10). Lastly, we find him invoked in connection with various sacrifices and he has been bestowed with various offerings.

Dhātṛ has been invoked nearly forty times in the Atharvaveda to grant all sorts of benefits. Thus he has been prayed for general well-being (XIX. 10. 3), for peace and prosperity (XIX. 9, 12), for prosperity with *Udumbar* (fig.) amulet (XIX. 31. 3), with Rati and Savitr for power (III. 8. 2), for wealth (VII. 18. 2-4), for long life (XVIII. 4, 8), with Vāyu, Indra, and Savitr for continued life (VIII. 1. 15), and with Vidhātṛ, Savitr, etc. for protecting the sacrifice from *nīrti* (perdition) (V. 3, 9). He has been begged to untie the skin-bag of the water of heaven (VII. 18. 1). He has also been invoked for defence against witchcraft (VIII. 5. 18), against *arbudi* (varicose veins ?) (XI. 11, 25) and to heal a wound and reduce a dislocation (IV. 12. 2). Again, he has been prayed to kill the enemy (X. 6, 21) and to protect in war (XIX. 20. 1). We find him invoked for getting a good husband for a woman and a good wife for a man (VI. 60. 3), in marriage ceremonies with other deities (XIV. 1. 33, 34; XVI. 2. 13), for successful conception (V. 25. 4, 5), and for progeny (VII. 20. 1). He has again been invoked in the *mantras* for funeral ceremonies, where he has been asked to protect the dead from perdition from the southern quarters, while Indra and Maruts have been prayed to protect him from the eastern, Aditi with Ādityas from the western, and Soma with all the gods from the northern quarters (XVIII. 3. 25-28); he has also been asked to maintain the dead aloft (XVIII. 3. 29). In addition, we know some of his characteristics from the Atharvaveda. Thus, he has been called the maintainer (XVIII. 3. 29), master, and lord of the moving creation (VII. 18. 1). He sustains the earth, sky, and the sun (VI. 60. 3). Again, in a hymn (IX. 12) where the various parts of the body of an ox and its various postures have been assigned to

various deities, the knee-joint has been attributed to Dhātṛ (IX. 12. 10); it has also been stated that the ox is Agni when sitting, the Asvins when arisen, Indra when standing eastward, Yama when standing southwards, Dhātṛ when standing westward, and Savitr when standing northward (IX. 12. 20, 21). Lastly, we are told that at the beginning of creation Dhātṛ was unborn (XI. 10. 5) and that he was born Dhātṛ (XI. 10. 9).

In the Brāhmanas, several deities have been qualified as *dhātā* (perhaps with reference to the protective or supporting influence): thus Prajāpati (Śat. Br. 9. 5. 1-38), the sun (Āit. Br. 3. 48), the Fire (Taitt. Br. 3. 3. 10. 2), the moon (Śadv. Br. 4. 6; Gop. Br. 1. 10), and the earth (Taitt. Br. 3. 8. 23. 3), have been so qualified. The year (Taitt. Br. 1. 7. 2. 1) and Death (Taitt. Br. 3. 12. 9. 6) have also been called *dhātā*. In some Brahmanas (Tāndya, 24. 12. 4; Taitt. 2. 6. 19. 1-2) Dhātṛ has been regarded as one of the Ādityas.

In the Naighaṇṭuka (5. 5), Dhātṛ has been enumerated with the gods of the middle region. In Nirukta (10. 26. 1) he has been described as the generator (or ordainer) of all beings.

The word is also found in the earlier astronomical works of the Hindus. The term is used for the *Uttaraphālgunī nakṣatra* in Āraṇyaka (sl. 9) and Yajusajyotiṣa (sl. 10). Somākara, the commentator, takes the word to mean Yama. Again Aryaman has been stated to be the two *Uttaraphālgunīs* or their presiding deity in the same two works (Āraṇy. sl. 9, 14, 25; Yāj. 10, 18, 32) as well as in Pitāmaha-siddhānta and Vṛhad-vasiṣṭha-siddhānta (8. 18).

Nothing definite is said regarding the physical nature of the deity by the oriental scholars, except that he is regarded as the creator in general.

From the study of Dhātṛ we find that, whereas he developed into a pre-eminent deity during the Vedic period, he merged into oblivion in the Brahmanic times. Considering the Vedic age, we find in the Rīgveda that he has been regarded as a creator of the world and invoked to support the earthly beings mainly in the way of giving them progeny. In the Yajurvedas, his field of gift has been further extended as a sustainer by food and wealth throughout the year. Lastly, in the Atharvaveda, we find him invoked for all sorts of gifts, in fact for all sorts of well-being and prosperity not only for the living but also for the soul of the deceased. Thus he has been regarded as a supporter and sustainer of the world and earthly beings. In the Brahmanas, he has almost lost his significance as a distinct personage. All the various deities have been qualified as *dhātā* (or supporters of the world).

From the above considerations I am led to the belief that, originally considered as a creator and then as a supporter of the world as well, he was later on forgotten as such; and, as we shall see, Prajāpati came into pre-eminence in his place.

I shall now try to explain why he was identified with the nakṣatra *Uttaraphālgunī* (in the singular) and why Aryaman later on replaced him and became the presiding deity of the same nakṣatra now mentioned as *Uttaraphālgunau* (in the dual).

Taking at least some of the characteristics of the deity that we find in the Vedas, we may perhaps consider the period of his benevolent works as related to the end of the spring (or beginning of the summer) and at the time of summer solstice, during which period the brilliant star β Leonis seemed to rise regularly in the early morning. It is for this reason that the star was identified with the deity. As the deity failed to be recognised later on, the lordship or identity was transferred to another deity, Aryaman.

We may also set forth an explanation why the same nakṣatra is used in the singular and dual in two places.

The asterism *Uttaraphālgunī* is made to consist of two stars, the brilliant β Leonis, placed near the ecliptic, and η Leonis, a less brilliant star and placed further north at a distance from the ecliptic. It seems to me that at the period when the asterisms were first recognised the lower star β Leonis placed close to the ecliptic was alone taken to represent the asterism, as the other was at a great distance from the equator. Later, when the equator, owing to the precession of the equinoxes, came closer to the asterism, the upper star, now comparatively nearer to the equator, was also taken into account and now the asterism was made to comprise the two stars. Although all the astronomical works recognise the above two stars in the asterism, one of them (*Jyotiṣasāra*) recognises only a single one, thus adhering to the old idea.

In this connection we may briefly discuss the deity *Vidhātṛ*. The name of this deity occurs twice in the *Rigveda* (VI. 50. 12 ; IX. 81. 5) as a distinct personality, where he has been invoked along with several other deities. In two other places (X. 82. 2, 3) *Viśvakarman* has been designated as *vidhātā* or disposer (of the world). In the *White Yajurveda* the term is found twice as an attribute of *Viśvakarman* (17. 26-7) and once of *Agni* (32. 10). In the *Atharvaveda* the name occurs thrice as a distinct deity and he has been invoked for various purposes (III. 10. 10 ; V. 3. 9 ; XIX. 37. 4). *Vidhātṛ* as a distinct deity does not appear in the *Brahmanas*, although in one place (*Gop. Br. Utt. 1. 10*) the moon has been called *dhātā* and *vidhātā*. Hence we may conclude that *Vidhātṛ* also fell into disregard as a distinct deity in the Brahmanic times. Evidently he took a less prominent part than *Dhātṛ*.

3. *Pitarāḥ*. The term has been used in the *Rigveda* more than fifty times to mean forefathers or ancestors. Again the words *pitarām* and *pitarāṃ* are found to occur some fifteen times for the heaven and earth. Lastly, we have one complete hymn

(X. 15) and some ten or more passages in which are invoked deities collectively known by the above name (pitarah).

We find a number of characteristics of the deities in the Rigveda and that some of them are repeated in the other Vedas. They have been qualified as high or highly-placed (*parāsa*), middle or belonging to the middle region (*mudhyama*) and low or belonging to the lower region (*avara*) (X. 15. 1); they have also been said to be foremost (eastern) (*pūrvāsa* or *pūrea*) (X. 15. 2, 8, 10), uppermost (*uparāsa*), as remaining on the earth, in the dust (atmosphere) and in the heaven (*viksu*) (X. 15. 2); further, they are said to reside near the ruddy one (*arunī*) (X. 15. 7) with the Devas (X. 15. 9), remain satisfied by themselves in the heaven (X. 15. 14), and ride on the same chariot as Indra and Devas (X. 15. 11). They have been referred to as known, unknown and as present in the sacrifice or not (X. 15. 13). They are stated to have once offered the Soma libation (Somyāsaḥ) and to be fond of Soma (X. 15. 1, 5, 8). Some of them are stated to have been fire-burned and others not so (X. 15. 14). They have been regarded as self-luminous (*svarāt*) (X. 15. 14) and as pervaded with fire (X. 15. 11). They have been said to be propitious, composers of hymns, truthful, intelligent, and performers of sacrifice (X. 15. 9, 10). In this connection we get several names, viz. Kavyas (X. 14. 3), Angirases (X. 14. 4, 5), Atharvas (X. 14. 6), Bhrgus (X. 14. 6), and Vasiṣṭhas (X. 15. 8), evidently the names of deceased persons of the respective families regarded as the Pitrs. The Pitrs have been requested to sit on the south of the place of the sacrificial fire (X. 15. 6) and have been invoked for happiness (X. 15. 4), protection (X. 15. 4, 5), riches (X. 15. 7, 11), and that they may not be offended by defects (in the sacrificial ceremonies) (X. 15. 6).

The deities have many times been referred to in the White and Black Yajurvedas, both in original passages and in hymns borrowed from the Rigveda. In the White Yajurveda they have been called the 'heavenly folk' (3. 55) and are said to live in Yama's realm (19. 45). They have been invoked as heroes, conquerors of armies, etc. (29. 46), and again for a good, brave son (2. 33) and for various other gifts. In the other work they have been eulogised many times in connection with various sacrifices. They have been said to guard Agni Āngiras on the south with the swiftness of the wind (1. 2, 13). The world where the Pitrs sit is pure (1. 3. 1. 6). In many things they seem to be opposed to the gods.

The Pitrs have been invoked many times in the Atharvaveda. Many deceased sages seem to have been invoked as Pitrs (XVIII. 3. 16, 20). They have been said to represent the arrows of the southern quarter (III. 27. 2). Yama has been called their overlord (V. 25. 14; XVIII. 2, 25). They have been invoked in marriage ceremonies for protecting the

bridegroom and bride and for progeny (XIV. 2, 73). They have been praised several times in connection with funeral ceremonies: Thus, they have been requested to come on the south (XVIII. 1, 42); the deceased person has been said to get a place among the Pitṛs (XVIII. 2, 25; XVIII. 4, 64; etc.). We hear of Pitṛs that sit on the earth, in the atmosphere, and in the sky (XVIII. 4, 78-80). Again, we have a passage where the lowest heaven is called watery, the mid-heaven starry, and the fore-heaven, third one, the abode of the Pitṛs (XVIII. 2, 48).

We have numerous references to the Pitṛs in the Brahmanas. They have been regarded as gods (Kauṣ. Br. 5. 6; Gop. Br. 1. 24). They are invisible to man (Śat. Br. 2. 4. 2. 21; etc.). They reside in the south (Taitt. Br. 1-6. 8. 5; Śaḍ. Br. 3. 1; etc.), in an intermediate quarter (Śat. Br. 1. 8. 1. 4; 2. 6. 1. 10, 11; etc.) and in the third sky (Tāndya Br. 9. 8. 5; Taitt. Br. 1. 3. 10. 5; 1. 6. 8. 7). Their home, the *pitṛloka*, is placed below (*adha*) (Śat. Br. 14. 6. 1. 10) and its gate is situated on the south-east corner (Śat. Br. 13. 8. 1. 5). Three grades of Pitṛs have been recognised: *Somavanta* (connected with Soma), *Varhiśadaḥ* (seated on Kuśa grass), and *Agnīsvāta* (pervaded with fire) (Śat. Br. 5. 5. 4. 28; 14. 1. 3. 24). Soma, again, has been called the lord of Pitṛs (Śat. Br. 3. 2. 3. 17). The Pitṛs have been regarded as the subjects of Yama (Śat. Br. 13. 4. 3. 6; etc.). The world of the herbs belongs to the Pitṛs (Śat. Br. 13. 8. 1. 20). Again Maghā (one of the lunar asterisms) has been said to belong to them (Taitt. Br. 1. 5. 1. 2; 3. 1. 1. 6).

As just mentioned, we find that the nakṣatra Maghā has been called Pitṛ in Vphatvasiṣṭha-siddhānta (8. 21), Soma-siddhānta (4. 6. 34), and Sūrya-siddhānta (8. 18); again, the Pitṛs are regarded as the lords of Maghā in Yājuṣajyotiṣa (sl. 32) and Āraṇyajyotiṣa (sl. 25).

There is not the least doubt that the Pitṛs or Fathers represent the dead ancestors or their departed souls dwelling in the heaven.

The Pitṛs are characterised by their intimate connection with Yama, who is their overlord and of whom they are subjects. Their place has been assigned to the south. Lastly, they are connected with the asterism Maghā. We shall now see how we can reconcile these statements. We find in Viṣṇupurāṇa (II. Ch. 8) that in ancient times the sun's northward shifting (*uttarāyaṇa*) used to begin in the sign Capricorn and end in the sign Gemini and that his southward movement (*dakṣiṇāyaṇa*) used to begin from the sign Cancer to end in the sign Sagittarius. Thus we know that the summer solstice was placed at the end of Gemini or nearabout and the winter solstice at the end of Sagittarius. We are again told that the path of the Pitṛs is known as Mṛgavithī, which comprises the asterisms Śravaṇā, Śatabhiṣā, and Pūrvabhādrapada. Śravaṇā forms

the middle portion of the sign Capricorn. Śatabhiṣā and one-fourth of Pūrvabhādrapada form the next sign Aquarius. Strangely enough we find that the asterism Dhanīṣṭhā which is placed between Śravaṇā and Śatabhiṣā is missing here. We do not know whether it was omitted by an oversight or was not counted at the time owing to its smallness in size. In any case we come to know that the path of the Pitr̥s used to begin with the winter solstice and end in the vernal equinox. This part of the year forms the coldest period and the death-rate, particularly of elderly persons, is highest at this time. As Yama is the god of death, it is easy to understand why he has been regarded as the lord of the Pitr̥s and the Pitr̥s as his subjects. Their abode in the south is easily explained when we note that the winter solstice is the southernmost point of the ecliptic with reference to the celestial equator. As regards their connection with Maghā, one cannot definitely say how the idea actually arose. We can only find that when the sun used to come to the winter solstice, placed at the end of the sign Sagittarius or the beginning of Capricornus, the asterism Maghā used to appear in the heaven at night. This is why (it may be suggested) the Pitr̥s were made the lords of the asterism, the junction star of which, viz. Regulus, is the largest and most prominent star in the heaven. One cannot consider that the winter solstice was placed near the asterism Maghā, since this would carry us back to 15000 B.C., a date which is not warranted by other evidences.

4. *Bhaga*. The term occurs about one hundred and twenty times in the Rigveda. The term seems to refer to the deity about seventy times or so : elsewhere it has been used for fortune or wealth, or used as qualifying Fire, the Sun or Puṣaṇ, having the significance of distributor (of wealth). In many passages we cannot be sure whether we are dealing with the deity or with the word used in the above sense. In spite of the fact that he has been invoked so many times, we can deduce very few attributes of the deity. He is one of the Ādityas (I. 14. 3 ; VII. 41. 1). We hear of his chariot (X. 64. 10 ; X. 93. 7) as in the case of many other deities. He is brilliant (II. 31. 4 ; V. 32. 5) ; he spreads his rays (I. 144. 3) ; we also know the rays of his eyes(?) (II. 136. 2) and his splendour (X. 68. 2). He is called the distributor (VII. 41. 2) or the dispenser (V. 46. 6). He is invoked in marriage ceremonies with other deities (X. 85. 23, 36). We hear of his path (III. 54. 14). Dawn is his sister (I. 123. 5).

The word occurs some ten times in the White Yajurveda. The deity is meant on some four occasions, but the word is used in other places for wealth, bliss or fortune. In the Black Yajurveda, the deity has been thrice invoked.

The word is seen some sixty times or more, in the Atharvaveda, referring to the deity about forty times. In the

remaining places the term is used in the sense of fortune, splendour, enjoyment and perhaps in two passages (I. 14. 1, 4) for the female external organ of generation. The deity has been eulogized in the mantras for marriage ceremonies (XIV. 1. 20, 50, etc.) with several other deities and for increase in progeny (XIV. 2. 13). He is formidable (III. 16. 2) and remains in the night watch (VI. 21. 2). He is asked to deepen the ploughing (III. 12. 4).

Yaska, in his *Niruktā* (12. 13), regards him as the presiding deity of the forenoon.

Bhaga is regarded as the presiding deity of the asterism *Purvaphālgunī* (consisting of two stars, δ and θ Leonis) in *Yājusajyotiṣa* (sl. 18, 32), *Āraajyotiṣa* (sl. 14, 25), *Pitāmaha-siddhānta*, and *Vṛhatvasiṣṭha-siddhānta*.

Oriental scholars regard Bhaga 'as a god in general' of the Indo-European period, as the word occurs in the Avesta as *bagha*, signifying 'god' and also in old Church Slavonic as *bogŭ*, having the same significance. The term 'cannot have attained a more specialized sense than 'bountiful god' if indeed it meant more than merely 'bountiful giver' (Macdonell's *Vedic Mythology*, p. 45).

I am inclined to believe that the deity gained a specialisation in the Vedic times. The significance of the word *bhaga* as fortune or wealth, and the eulogies of the deity in connection with the deepening of ploughing and, lastly, his connection with the asterism *Pūrvaphalgunī*, either as the asterism itself or as its presiding deity, lead one to the same view. The fortune or wealth of the sages in the Vedic times principally consisted of crops of barley (perhaps wheat as well), which grow only in the high lands of the Punjab and United Provinces in the cold weather. When the vernal equinoctial point was passing through the end of the sign Taurus or beginning of Gemini, the asterism *Uttaraphalgunī* used to rise at the end of night towards the dawn during spring when the crops used to ripen. Hence if we take the asterism to represent the deity either by itself or as its presiding lord, we have a distinct deity in Bhaga on whom used to depend the fortune of the sages according as they had a good crop or not. This, being the best and suitable period of the year, free from heat, cold and rain and with plenty of provisions, used to be selected for marriage ceremonies. The few characteristics of the deity that we know can be well accounted for if we accept this view.

5. *Yama*. The word occurs some fifty times in the *Rigveda*. It is used in the significance of 'restrainer or controller' in some seven passages occurring in the first (I. 66. 4; I. 73. 10), second (II. 5. 1), third (III. 27. 3), fifth (V. 61. 2), seventh (? VII. 33. 9), and eighth *maṇḍala* (VIII. 24. 22); in one place (X. 8. 4) the term *Yamayok* is used for a pair. Elsewhere the term indicates the deity under consideration.

One complete hymn (X. 135) is dedicated to him. He is also invoked or otherwise mentioned in scattered passages. There is also one complete hymn (X. 10) for Yama and Yamī consisting of a dialogue between them. The name of the deity occurs only in the first, ninth, and tenth maṇḍalas, by far the largest number being found in the last.

Yama is sometimes addressed as *Vaivasvataḥ*, the sun's son (IX. 113. 8; X. 14. 1; X. 58. 1; etc.). He is closely connected with Agni, who is a friend of Yama (X. 21. 5) and is his priest (X. 52. 3). Again, Agni protects the goodwill of Yama (X. 12. 6). He is also associated with Varuṇa, both addressed as the king, as the dead man meets the forefathers. Yama and Varuṇa together (X. 14. 7). Yama's foot-fetter is said to be parallel with the bond of Varuṇa (X. 97. 16). In one passage (I. 164. 46) Agni, Yama, and Mātariśvān are said to be the names of one being (perhaps the sun). We are also told that Mātali (Indra's charioteer) grows (prosper) with Kavyas, Yama with the Angiras, and Vṛhaspati with the Rikhas (X. 14. 3). He has also been invoked with several other deities (X. 64. 3).

Yama has been addressed as a king (X. 14. 1). His birth is not attended with death (I. 83. 5). War is pleasant to him (I. 116. 2). He is the representative of death (X. 165. 4). Death is his path (I. 38. 5). He builds up the dwelling for the dead (X. 18. 13). Everybody goes to him (X. 14. 1). The dead man is asked to go by the same path and to the same place as his forefathers did and meet Yama (X. 14. 7); he is again asked to meet the fathers and Yama in the heaven (X. 14. 8). Yama carries the good men to the place of happiness and clears (their) path (X. 14. 1). The place he assigns to the dead is displayed day and night and is full of waters (X. 14. 9). Again, the mind (soul or life) of the dead goes to Yama at a great distance (X. 58. 1). Yama has been requested to grant clear (*bhadra*) eyes (X. 164. 2).

Yama has two messengers as two dogs, the sons of Saramā. Each of them is four-eyed, variegated, broad-nosed, insatiable, and mighty (X. 14. 10-12). Again, the pigeon (*kapota*) is his third messenger (X. 165. 4).

We have a detailed account of Yama's residence. In short, it is placed in the third heaven (IX. 113. 8), the two other heavens (regions) being close to the sun (I. 35. 6). It is also illuminated with light (IX. 113. 7, 9), and is immortal (place of immortality), and indestructible (IX. 113. 7). There is a gate in the heaven leading to his abode and there are large streams in his place (IX. 113. 8). There is the place of *Bradhna* (the root of everything—Brahman or the beginning of the year ?) (IX. 113. 10). There are all sorts of pleasure and satiety (IX. 113. 11).

Trita is said to have yoked Yama's horse and Indra to have

been the first to ride on it (1. 163. 2). The sacrificial horse is said to represent Yama, Āditya, and Trita (1. 163. 3).

Lastly, in the dialogue between Yama and Yamī (X. 10), they call themselves children of Gandharva and the water nymph. Yamī wanted to have sexual union with Yama, her twin brother, but Yama rejected the proposal.

Yama's name is found in some twenty-five places or more in the White Yajurveda. No further information is found here. He has given a place on the south for the comers (that is, the fathers) to rest in (12. 45). Yama remains in the highest heaven along with Yamī (12. 63).

Yama has many times been invoked in the Atharvaveda. What we have already seen in the Rigveda is more or less repeated here. Yama is the overlord of fathers (5. 24. 14); he makes seats for the fathers (18. 3. 52). He is the master of bipeds and quadrupeds (6. 28. 3). He is provided with arrows (12. 3. 56). He was the first of mortals, who died and went to that world (18. 3. 13). Death is his messenger (18. 2. 27). He is the father of sleep (6. 46. 1); sleep is the agent of Yama (6. 46. 2; 16. 5. 1) and is the instrument of Yama (19. 57. 3). In a funeral verse (18. 3. 66), we are told of an eagle in the firmament, golden winged messenger of Varuṇa, busy bird in the lair of Yama.

There are some references to Yama in the Brahmanic literature. The southern quarter belongs to Yama (Śat. Br. 14. 6, 9, 22). Anurādhā, the first, and Apabharāṇī, the highest, are the two asterisms of Yama (Taitt. Br. 1, 5. 2, 7). The earth is Yamī (Śat. Br. 7. 2. 1, 10).

According to Yājñasaṃjyotiṣa (sl. 34) and Āraṇyaka (sl. 9), Yama is the presiding deity of Bharāṇī, which is named Yamalā in Somasiddhānta (4, 6, 7).

Yama and Yamī correspond to Yima and Yimeh of the Indo-Iranian period. Yima, as a god, is found in the Avesta. He is beautiful and is the owner of a good flock (Vendidad II. 4). He is the son of Vivanhās (Sun), as the recorder and bearer of the law (Vend. II. 8). He enlarged the world of Ahura Mazda, made it fruitful, and obeyed him as a protector, nourisher, and overseer of the world (Vend. II). Yimeh is mentioned in the later Iranian literature (Spiegel, *Iranische Altertumskunde*, I, p. 527), as the sister of Yima, who, with her brother, formed the first human couple.

The physical nature of the deity has been fully discussed by oriental scholars (see Macdonell's *Vedic Mythology*, p. 173). I shall first consider the deity in his relation with the dead and then the twins, Yama and Yamī.

In spite of the diverse opinions of the scholars, there is no doubt that Yama is intimately connected with the dead and that people reach his kingdom only by death. Let us see what led to the idea of the god of the departed. Although death is

a natural phenomenon in the living world, still the loss of people, sometimes in numbers, as in an epidemic, was keenly felt. Further the death of elderly people was regarded as a heavy loss to the community. Under these circumstances they were obliged to look for some preventive measures and were thereby led to think of some supernatural (divine) power as an agent in the causation of death, an obeisance to whom might give some relief. This ultimately led to the conception of a presiding god of death. Such an idea is well revealed in the passages of the Vedas. The idea was also current that Yama was the first mortal who died and went to heaven. We know that the greatest number of deaths, specially of elderly people, occur in the winter and to a less extent in the autumn. These two seasons in the north-west region of India more or less correspond to that part of the year which is included between the autumnal equinox and vernal equinox through the winter solstice. We have seen above (in the Taitt. Br.) that Anurādhā and Bharanī are the two asterisms of Yama. Anurādhā is called the first and Bharanī is called the highest (*uttama*): they are placed at a distance of about 190° from each other. This evidently indicates that the influence of Yama on death was particularly manifested in that part of the year which was placed between the risings (in the early morning) of the two asterisms. The origin of this idea will be understood, if we think of a time when the autumn equinox was near Anurādhā and the vernal equinox near Bharanī. Again, as this half of the ecliptic falls to the south of the celestial equator, the southern region of the heaven is assigned to Yama. Varuṇa's seat near Yama's is also explained when we remember that Satabhisa, the presiding deity of which is Varuṇa, is placed within 90° of Bharanī, between it and Anurādhā. Yama's friendship with Agni no doubt refers to the agency of the latter in burning the body before the dead can go to Yama. The two dogs of Yama seem to be the two stars of Mūlā (Viertau) (which we have already discussed). The pigeon of Yama, however, can only doubtfully be identified with the constellation Columba, as 'it is supposed to have received its name as early as the 16th century' (Whyte's *Constellations and their History*, p. 242). It is, however, possible that it was recognised in the Vedic times. Yama's horse, again, may be the constellation figure of Pegasus. The streams in the neighbourhood of his abode and the plentiful supply of water in the places that he assigns to the dead are indications of scarcity of water elsewhere; they are referable to the portion of the milky way in the signs of Taurus and Gemini. The eagle of Varuṇa, his golden-winged messenger, seems to be the constellation figure of Aquila.

Yama and Yamī are traceable to the Indo-Iranian period as Yima and Yimeh. The name of Yima is found in the Avesta where we come to know something about him. Yimeh is not

mentioned there and seems to appear at a later period. Comparing the attributes of Yama as the god of the dead in the Vedas with those of Yima of the Avesta we are inclined to believe that they are separate deities or, at least that the conception regarding their physical nature was different, in spite of the fact that both are regarded as the sons of the sun. It is highly probable that Yima is different from Yama, and Yima and Yimeh came down to the Vedic period as Yama and Yami. The myth that Yima and Yimeh were the first living couple was probably consistent with the prevalent custom of the Indo-Iranian people of marriage between the brother and sister : as the custom changed in later times, the Vedic sages considered such pairing objectionable and hence the refusal of Yama to Yami's proposal. It is also highly probable that Yama as the god of the dead was a conception which originated in later Vedic times. The real physical basis of Yama and Yami has been sought by Max Müller in the day and night. In Śatapatha Brahmana the earth is called Yami. Hence they may mean heaven and earth.

6. *Rudra and Rudras.* The names of Rudra and Rudras occur some hundred times in the Rigveda, excluding those passages where the Maruts have been addressed as Rudra's sons. The terms, however, have been used in three senses : First, the term in the singular has been made to qualify certain deities. Secondly, we have a deity by the same name. Thirdly, the term in the plural indicates a group of deities under the name of Rudras. The term has been used to qualify Agni (I. 27. 10 ; II. 1. 6 ; V. 3. 3 ; etc.), Asvins (I. 158. 1 ; II. 1. 6 ; VIII. 26 ; 5 ; etc.), Soma (IX. 73. 7) and Mitavaruṇa (V. 70. 2), probably signifying redness, lustre or fearfulness. Further we have mention of a red cloud (VIII. 63. 12). Asvins have also been addressed as *rudravartman* (I. 3. 3 ; VIII. 22. 1, 14) having a bright path (referring perhaps to the morning light).

Rudra, as a deity, has been invoked with others in several places (V. 41. 2 ; V. 51. 13 ; VI. 62. 8 ; X. 93. 4 ; etc.). He has also been addressed as the father of Maruts (I. 33. 1), Tryambaka (VII. 69. 12), Varāha (I. 11. 4, 5), and Vṛṣabha (II. 33. 4, 7, 8, 13). Rudra possesses numerous characteristics. He lives in the heaven (I. 114. 5 ; II. 33. 15). He is brilliant (I. 114. 4, 5 ; V. 42. 11 ; etc.), glittering like gold (I. 43. 5), and bright like the sun (I. 43. 2). He is of a whitish colour (II. 33. 8) and is also reddish-brown (II. 33. 5, 8, 9 ; etc.). He is multiiform (II. 33. 9, 10). He is bent to one side (I. 114. 4). He is youthful (II. 33. 11) and strongly built (II. 33. 9) ; there is none stronger than Rudra (II. 33. 10) ; he is strong-armed (II. 33. 3) and is called *asura* (I. 122. 1 ; V. 42. 11) evidently referring to his unusual strength ; he is called the boldest of the bold (II. 33. 3). He has a well-formed nose (II. 33. 5) and has braided hair (I. 114. 1, 5). He has got brilliant gold on his body (II.

33. 9) and has a necklace (II. 33. 10). He holds a strong bow in his hand (II. 33. 10, 14; VII. 43. 1) and is a sharp archer (VII. 46. 1). He remains seated on the chariot (II. 33. 11). He has an army (II. 33. 11). He is the lord of the world (II. 33. 9; VI. 49. 10). He is the best of the physicians (II. 33. 4) and has 1,000 medicines (VII. 46. 3); he holds healing drugs (II. 33. 7); he has been prayed to for the cure of diseases (I. 43. 4), particularly cholera (*visuci*) (II. 33. 2) and for a life extending over a hundred winters (II. 33. 2). Rudra is said to pour down rain from the firmament with the help of the Maruts (X. 92. 9). We are also informed of his disposition. He is hot-tempered (II. 33. 9, 11; X. 126. 5), dreadful like a beast (II. 33. 11), and destructive in nature (II. 33. 11). His harmful disposition is clearly shown in the way he is invoked (VII. 46. 4) to do no harm to the children and elderly sons (VII. 46. 3), not to make one ill (VII. 46. 2), not to be offended with the people (II. 33. 4, 5; VII. 46. 4; etc.), to hold back his weapon and evil will from the people (II. 33. 14), and to slacken the chord of the bow (II. 33. 14). He is also invoked not to deprive one of the sight of the sun (II. 33. 1) and to protect one from Rudra's thunder which travels from the firmament to the earth (V. 51. 13).

Two other deities, Keśin and Vāgdevī, are found connected with Rudra. The first one is brilliant and provides all the worlds with light (I. 136. 1); he holds the fire, water, heaven, and earth; he visits the wandering places of the apsaras, gandharvas, and deer (I. 136. 6). When Keśin drank water in the (same) pot with Rudra, Vāyu agitated it (water) and broke down the inflexible (X. 136. 7). Vāgdevī is said to help Rudra in stretching his bow when the latter makes ready to kill the enemy; she fights for the people (X. 125. 6). She travels with the Rudras and Vasus (X. 125. 1).

Lastly, we have a group of deities collectively called Rudras. They have been mentioned several times with Indra (II. 32. 2, 3), Agni (I. 58. 3; VIII. 103. 14; X. 32. 5), and with Rudra himself as the chief of the Rudras (X. 64. 8) and invoked to be propitious to the Rudras (VII. 35. 6). They are often associated with the Vasus (I. 45. 1; II. 31. 1; X. 66. 4, 12; etc.). Aditi is their mother (VIII. 101. 15).

Rudra is invoked or otherwise mentioned some fifty times in Vājasaneyi Samhitā. Most of the attributes of Rudra that we find here are undoubtedly derived from the R̥gveda. He has also been addressed as Tryambaka (3. 58, 60) and Pāsupati (lord of beasts) (6. 32; 9. 39; etc.). Ambikā is his sister (3. 57). Rudra used to be invoked at dawn (34. 34; 38. 16). His neck is azure and the body is red (16. 7); he is hundred-eyed (16. 12) or thousand-eyed (16. 8; 16. 29); he is golden-armed. He is clothed in a garment made of skin (3. 61). He is hundred-bowed (16. 29) and again holds a shaft in his hand (16. 1). He

is a mountain-dweller (16. 2, 3, 4). He is a divine physician (16. 5) and is the lord of plants (16. 19); his is the healing medicine (3. 59). He is the leader of hosts and lord of regions (16. 17). He is a husband-finder (3. 60). Herdsmen and girls carrying water have looked at him (16. 7). In addition, we have Īsāna (39. 8), Nilagriba (16. 28), Paśupati (16. 28; 39. 8), Mahādeva (39. 8), Śarva (16. 28; 39. 8), and Sitikanṭha (16. 28). Homage is given to them individually. Lastly, we have Rudras, Bhavas, and Śarvas. Rudras have traits similar to those of Rudra (16. 58-66). They are said to maintain their stations in the regions and surround Rudra (16. 6). They are lords of assemblies and masters of horses (16. 24), lords of troops and sharpshooters (16. 25) and overlords of the southern region (15. 11). Their throats are white and necks are blue (16. 56). They remain in the sky (16. 56) and again are innumerable on the surface of the earth (16. 54). They are bright (15. 11). They are connected with summer (21. 24) and with rain (33. 50). Bhavas (16. 55) live in the air and Śarvas (16. 57) live beneath the earth.

Rudra is mentioned several times in Taittirīya Saṃhitā. He has a dart (1. 1. 1). He guides in the path of Mītra (1. 2. 4). We have mention of Paśupati (1. 4. 36; 4. 5. 5), Bhava (1. 4. 36; 4. 5. 5), and Śarva (1. 4. 36; 4. 5. 5). Rudras are also invoked with Vasus and Adityas (1. 11, 13). They remain on the earth (4. 5. 11). Bhavas live in the air (4. 5. 11). Śarvas with black neck and white throat, wander below the earth (4. 5. 11).

Coming to the Atharvaveda, we find that many traits of Rudra and others as depicted in the Rigveda are repeated here. Rudra has been invoked many times alone, with the Rudras (19. 10. 6), with Paśupati, Bhava, and Śarva (12. 8. 9). He is thousand-eyed (11. 2. 3), blue-locked (11. 2. 7) and immortal (11. 2. 3). We are informed of his dark crests (2. 27. 6), his breath, noise, and pangs (11. 2. 3). He has got healing remedies (2. 27. 6) and the disease is his name (6. 44. 3). Takman (fever) and Kāsika (cough) are his weapons (11. 2. 22). He has a golden-yellow bow (11. 2. 12). He has a one-shafted and hundred-tipped arrow (6. 57. 1). He has a club (11. 2. 19). He has been called hundred-weaponed (11. 2. 12). He is considered to be the lord of cows, horses, sheep, goats, and men (11. 2. 9). He has dogs (11. 2. 30). Rudra has been invoked as Bhava and Śarva (11. 2). Rudra is said to remain in the fire, within the waters, in the herbs and trees, and is said to have shaped all living beings (7. 92. 1). Yakṣa within the waters belongs to Rudra and the waters of the heaven increase their flow for him (11. 2. 24). Rudra marks the fall of Keśin's chariot (12. 2. 18). Īsāna, Ugradeva, Paśupati, Bhava, Mahādeva, and Śarva are not only invoked, but have been given a more prominent place than in the other Vedas. All of them are archers. Assigning a

fixed quarter to Rudra (15. 5. 10), Ugra is regarded as the lord of the northern quarter (15. 5. 8), Paśupati of the western quarter (15. 5. 6, 7), Bhava of the eastern quarter (15. 5. 1), Mahādeva of the southern quarter (15. 5. 7), and Śarva of the upward quarter (15. 5. 7). Isāna is regarded as the lord of all the quarters (15. 5. 15). Paśupati is regarded as the lord of bipeds and quadrupeds (2. 24. 1; 12. 8. 9), but the term seems also to be used for qualifying Bhava (11. 2. 28) and Rudra (11. 2. 5). Bhava has been invoked with Rudra (3. 16. 1; 11. 2. 14), with Ugra and Śarva (15. 5. 9), and with Soma and Isāna (15. 5. 3). Bhava has been invoked with Śarva to prevent epidemics (11. 2. 2). Mahādeva has been invoked with all the other deities except Rudra (5. 21. 11). Śarva has been called spotted-armed (8. 8. 17). Rudras have also been invoked in the present work. They have once been addressed with Rudra (19. 10. 6). They are sky-reaching (5. 3. 10), of keen brightness (19. 9. 10). They are twice associated with Vasus (8. 8. 12; 10. 7. 22) and four times with the Vasus and Ādityas (10. 7. 22; 12. 2. 6; 19. 9. 11; 19. 11. 4).

Turning to the Brahmanic literature, Agni (fire) is said to have nine forms: Aśani, Isāna, Ugra, Kumāra, Paśupati, Bhava, Mahādeva, Rudra, and Śarva (Śat. Br. 6. 1. 3. 18). Aśani is regarded as lightening (Śat. Br. 6. 1. 3. 14). Isāna is considered as an Āditya (Śat. Br. 6. 1. 3. 17). He dwells in the south (Jaim. Uttar. 3. 21. 2). He divides into ten, he is the rays of the sun which, becoming life, reside in all living beings (Jaim. Utt. 1. 29. 3, 4). The herbs and trees belong to Ugra (Kaus. 6. 5). Kumāra, according to Amarakośa is Rudra's or Agni's son. He was born in the *sambatsara* (Śat. Br. 6. 1. 3. 8-10). *Sambatsara* is Kumāra (Śat. Br. 11. 1. 6. 5; 11. 1. 6. 3). The herbs belong to Paśupati, from whom the animals get their medicine (Śat. Br. 6. 1. 3. 12). Vāyu is from Paśupati (Kaus. 6. 4). Bhava is external (Śat. Br. 1. 7. 3. 8). The cloud is Bhava, all those exist from the cloud (Śat. Br. 6. 1. 3. 15). Water arises from Bhava (Kaus. 6. 2). Agni is Rudra (Śat. Br. 5. 3. 1. 10; Tāṇḍya Br. 12. 4. 24; etc.). The Moon is Rudra (Kaus. 6. 7). He is fulfiller of desire (Kaus. 3. 4. 6; Śat. Br. 13. 3. 4; etc.), lord of beasts (Śat. Br. 1. 7. 3. 8; etc.), awful (Kaus. 16. 7), and is provided with a dart (Sūla) (Ṣaḍb. Br. 5. 11). We have mention of his arm (the nakṣatra Ārdrā, according to Śayana) (Taitt. Br. 1. 5. 1. 1). Rudra arose from a weeping (raining?) one (Śat. Br. 6. 1. 3. 10), Mṛgavyadha (the star Sirius) is Rudra (Aitar. Br. 3. 33). Rudra is the lord of the northern (upper) region (Śat. Br. 2. 6. 2. 7; etc.). Rudra is said to have killed the cow (Tāṇḍya Br. 6. 9. 7); again the cow is called raudrī (Taitt. Br. 2. 2. 5. 2). Ambikā is Rudra's sister (Śat. Br. 2. 6. 2. 9; Maitr. Sam. 1. 10. 20); she is 'autumn' (Taitt. Br. 1. 6. 10). Again 'autumn' is called the place of (origin of) Rudra (Maitr. Sam. 1. 10. 20). Ambī is the wife

of Bhava, Tryambakas are from her (Mait. Sam. 1. 10. 20). Śarva remains in the south (Śat. Br. 1. 7. 3. 8). Lastly, we have the Rudra. They are from the southern direction (Ait. Br. 8. 14). They are invoked by the summer (Tait. Br. 2. 6. 19. 1). They are inaugurated in the midday, while the Vasus are celebrated in the morning and Ādityas in the third part of the day (Śat. Br. 14. 1. 1. 15; Taitt. Br. 1. 5. 11. 3). Their number is fifteen (Taitt. Br. 2. 6. 19. 1) or eleven (Taitt. Br. 1. 5. 11. 3). The eleven Rudras are thus enumerated in Mahābhārata (I. 66. 2-3); Mrgavyādhā, Sarpa, Nirṛti, Aja Ekapāt, Ahirbudhnya, Pinākin, Īśvara, Kapālī, Sthānu, Bhaga, and Rudra.

In the old astronomical works we find that most of deities in question are the presiding gods of the various asterisms. Rudra is the lord of Ādrā (Yājusajyotiṣa sl. 10, 32; Āraajyotiṣa sl. 9, 25; Somasiddhānta 4, 6, 9). Mrgavyādhā is the star Sirius, Sarpa is the asterism Asleṣhā or its presiding deity (Y. sl. 10, 32; A. sl. 9, 25; Pitāmaha-siddhānta; Vṛddhavasistha-siddhānta 8, 20). Nirṛti is the lord of Mūlā (Y. sl. 33; A. sl. 26), Aja Ekapāt is the lord of Purvabhādrapada (Y. sl. 10, 34; A. sl. 9, 27). Ahirbudhnya is the lord of Uttarabhādrapada (Y. sl. 18, 34; A. sl. 14, 27; etc.). Bhaga is the lord of Purvaphalgunī (Y. sl. 18, 32; A. 14, 25; etc.).

In Nighaṇṭu (5. 4, 3), the term Rudra is made to signify 'one who cries, makes a noise or gives rise to a downpour (of rain); one who makes (the enemies) cry. A passage (quoted from Hāridrava, a recension of Maitrāyaṇī Saṃhitā) means that Rudra repented and shed tears after having pierced the father Prajapati with an arrow. If the term is made to derive from the root *rud* to be ruddy, it may mean the 'red one' (Pischel) (cf. the ancient Iranian word *raoidita*, reddish).

According to oriental scholars, Rudra is a storm-god or tempest-god. His mischievous side is attributed to the destructive agency of light. From his name he is connected with thunder (one who makes noise). The suggestion (Macdonell's *Vedic Mythology*, p. 77) that 'his beneficent and healing powers would be based partly on the fertilising and purifying action of the thunderstorm and partly on the indirect action of sparing those whom he might slay' does not appeal to me.

Some of the traits of Rudra, namely, his pouring down of rain from the firmament with the help of the Maruts and his connection with the thunder, no doubt connect him with storms and rains which characterise the summer monsoon, generally starting sometime after the summer solstice. The attribute of Rudra as a physician with his healing herbs (used as drugs) and the obeisance to him for the prevention or cure of diseases, particularly of children and young men, bring him into close connection with the autumn (after the rains have started and

have continued for sometime). This is further confirmed in *Maitrāyaṇī Samhitā*, where Rudra is said to have his birth in the autumn. Last of all, the characteristic peculiar to him and a few others (who are with one exception, nothing but his counterparts) is that he is an archer. This, with the note that Rudra lives in the heaven, leads us to the idea that Rudra is nothing but the sign Sagittarius which used to appear in the Heaven at dawn in the autumn when the observations were made. Plunket in his *Ancient Calendars and Constellations* (pp. 151-161) advanced this view. He also proved that the traits and deeds of Greek god Kiran are exactly similar to those of Rudra and in his myth we are told that he had his place in the sign Sagittarius after his death. He was thus made the presiding god of all the physical phenomena of the time. We can easily explain the various attributes of Rudra if we accept this view. His brightness and golden ornaments are attributable to the bright stars in the constellation and the milky way passing through its upper part. His strength and youthfulness have been taken from the distressing effect of the thunder-storm, which was taken to be one of his deeds. The peculiar configuration of the constellation, half-man and half-goat perhaps led to his attribute as 'multiform'. His hot-temper, dreadfulness and destructiveness are all accountable to the storms which are due to him. Rudra's hundred or thousand eyes and his hundred bows are the parabolic expressions of his bodily features and weapon. We do not know whether the herdsmen and girls carrying water actually refer to mortal beings frightened from the advent of storms, or to Cepheus (the constellation figure of which represents a herdsman with his flock of sheep) and Aquarius (representing a *man* holding a bucket on his shoulder) which used to appear in the sky with Sagittarius. His attribute as a husband-finder led to the practice of giving by young girls of offerings to Siva for a good husband. The origin of the idea is perhaps to be sought in the activity of strong hardy persons in rescuing people during the distressing storms and drawing the attention of girls to seek husbands amongst them. The great distress and mortality amongst goats, sheep, cattle, and even men, thought to be caused by Rudra and to be preventible by paying homage to him, perhaps led to the idea of his lordship over animals. The name Tryambaka meaning three-eyed is explained by Plunket in a very ingenious way : he holds that the third crescentic eye is nothing but the half moon which used to rise in the sign Sagittarius at about 4000 B.C. when the autumnal equinox was in this sign.

We have already seen that, while Rudra alone is found to be invoked in the *Rigveda*, a number of other deities are closely associated in the other vedas. Their number has increased gradually from the *Yajurvedas* to the *Atharvaveda* where they hold a prominent place equally to Rudra. They are all archers

and different directions are assigned to them round a fixed quarter of Rudra. They have been addressed in various combinations and many times with Rudra himself. In the Brahmanas they are regarded as forms of Agni. As we know, they are now considered as the names of the god Siva. We may reasonably assign their origin to the division of the original large constellation Rudra into so many forms each bestowed with certain attributes. Their actual nature seems to have been forgotten in the Brahmanic period. We have sufficient evidence of the division of larger constellations into smaller ones in past times : I may just mention one, named Ophiuchus, placed just above Sagittarius. It has the figure of a male holding a snake in both hands. He was regarded as a great physician in Greek Mythology. The Arabs used to represent him as a shepherd and he was assigned a mischievous disposition (Whyte's *Constellations and their History*, p. 199 and Smyth and Chamber's *Cycle of Celestial Objects*, p. 495). Evidently, this was derived from an originally larger sign Sagittarius and was made a new one.

Lastly, the Rudras were recognised as early as Rudra, who was considered their chief. Taking the significance of their name as 'bright one' or 'red one' and considering their general traits, we may take them to be neighbouring asterisms not yet definitely recognised by distinct names. This is distinctly shown by the names of eleven Rudras, as enumerated in the later Sanskrit literature, where they are all connected with the asterisms.

In this connection we may also consider the nature of Keśin and Vāgdevī. The characteristics of Keśin lead us to follow Sāyaṇa and consider him the sun. His drinking of water with Rudra from the same pot refers to his arrival in the sign Sagittarius. The fall of his chariot indicates the southward passage of the sun after the autumnal equinox. Vāgdevī seems to be the goddess who was held responsible for the sounds in the storm apart from the thunder.

7. *Vasus*. The term Vasus occurs more than fifty times in the Rigveda. It seems to signify food (*anna*) in one passage (VII. 1, 2) and money, fortune or prosperity in several others. In several places the word has been used to qualify various deities, as Agni, Indra, Rbhus, Maruts, Mitra, Varuṇa, and Viśvadevas, evidently indicating them as 'givers of prosperity'. Lastly, in some thirty-six passages the term is meant for the deities under consideration.

Vasus as deities have been invoked alone and with others : on several occasions they have been addressed in conjunction with Rudras and with Rudras and Ādityas.

Vasus are themselves called Ādityas (II. 27. 11 ; VIII. 18. 15 ; VIII. 18. 17). They are brilliant (V. 41. 18). They have a heat-giving wheel (*cakra*) (II. 34. 9) and a beautiful

and pleasant boat (VIII. 18. 17). They have a cloud-splitting and mankilling weapon (VII. 56. 17). We know of their cow from which food has been begged (V. 41. 18).

We are also informed of some actions of Vasus. They have established strength in fire (VII. 5, 6) and served the work of fire (VII. 5, 6 : VII. 11. 4). They have served the Maruts (VII. 39. 3). They are said to have released the *gouri* cow (IV. 12. 6). Lastly, in a passage of the Horse-hymn (I. 163. 2) we are told that Trita yoked the horse given by Yama, Indra rode on it first, Gandharva (the moon according to Sāyana) held its reins, and Vasus fashioned it from the sun.

Coming to White Yajurveda we find them invoked on some twenty-one occasions. Here they are somewhat closely related to Indra : Indra is their lord (38. 8) : he is their companion (28. 4) and is anointed by Vasus and Rudras (23. 8). They have been invoked with Rudra, Rudras, and with Rudras and Ādityas. They are praised with the spring (21. 23).

They have also been invoked in Black Yajurveda usually with Rudras and Ādityas.

In Atharvaveda, Vasus, as deities, are mentioned in some twenty-four passages. They have been invoked alone, and with Ādityas, Ādityas and Rudras, Ādityas and Indrāgni and Brhaspati. Ādityas, Rudras, and Vasus have been considered to be gods in the heaven (11. 8. 13). Vasus maintain good things (1. 9. 1). They are the masters of the removal of distress (4. 27. 6). They are said to guard the cow on the right, Maruts on the left and Ādityas behind (10. 9. 8). There are three obscure passages which run thus : (1) The cow is heaven, the cow is earth, the cow is Viṣṇu and Prajāpati : Sādhyas (Gods of fulfilment) and Vasus drank her milk (10. 10. 30). (2) Having drunk the yield of the cow, Sādhyas and Vasus worship her milk (*paya*) at the top of the *bradhna* (sun) (10. 10. 31). (3) The worshipable (deserving of oblation) Puruṣa was born first and was sprinkled by the rainy season ; by him the gods Sādhyas and Vasus performed the sacrifice (19. 6. 11).

Turning to the Brāhmanas, we find them mentioned in several works. They are eight in number : Fire, Earth, Vāyu, Firmament, Āditya, Heaven, Moon, and Asterism (Śat. Br. 11. 6. 3, 6). In the same passage the word is made to signify 'those who cause to live (exist)'. We are also told that the Viṣṇu-sacrifice has been divided into three parts, morning libation for Vasus, midday libation for Rudras, and third (afternoon) libation for Ādityas (Śat. Br. 14. 1. 1. 15). The eight deities, Vasus, are auspicious and the four goddesses, not subject to old age, are Śraviṣṭās (Taitt. Br. 1. 5. 1. 5).

Lastly, we find that the Vasus are the asterism Dhanīṣṭha (Ārc. jyot. sl. 9 ; Yāj. jyot. sl. 10) or its presiding deities (Ārc. jyot. sl. 29 ; Yāj. jyot. sl. 34).

The eight Vasus, already enumerated, are differently men-

tioned in the later Sanskrit works. Thus, (i) according to Mahābhārata (Dānaparva), they are Dhara, Dhruva, Soma, Sāvitra, Anila, Anala, Pratyūṣa, and Prabhāsa : (ii) according to Bhāgavatapurāṇa, they are Drona, Prāṇa, Dhruva, Arka, Agni, Doṣa, Vāstu, and Vibhāvasu : (iii) according to Vāyu- and Kūrmapurāṇa, they are Āpa, Dhruva, Soma, Dhara, Anila, Anala, Pratyūṣa, and Prabhāsa : lastly (iv), according to Amarakoṣa, they are Dhara, Dhruva, Soma, Viṣṇu, Anila, Anala, Pratyūṣa, and Prabhāsa. In these different enumerations, we may regard Anala identical with Agni, Arka with Viṣṇu and Sāvitra, Drona (literally meaning a cup) with Soma (the moon), Dhara with Vāstu, Pravāsa (a shining one) with Vibhāvasu and Prāṇa with Āpa. Doṣa (evening) probably corresponds to Pratyūṣa (dawn) referring to the comparative darkness after sunset and before sunrise. Thus we have Agni (Anala), Arka (Sāvitra, Viṣṇu), Āpa (Anila, Prāṇa), Doṣa and Pratyūṣa, Dhara (Vāstu), Dhruva, Pravāsa (Vibhāvasu), and Soma (Drona) as the Vasus.

I shall now consider what led to the idea of Vasus as deities. The significance of the term *vasu* as used in the Rigveda may reasonably make one think that the vasus were regarded as givers of food, fortune, and prosperity. We also have direct evidence in the same work and in the Atharvaveda. Vasus' cows are begged for food. They are themselves said to maintain good things and are regarded as the masters of the removal of distress. The Vasus are connected with the hot season and rains. They have a heat-giving wheel which we take to mean the sun. They served the work of fire. Their cloud-splitting and mankilling weapon is no doubt the thunder during the storm and rain. Indra's lordship and companionship of the Vasus point to the same thing. We know that the summer and rains are closely connected in northern India. The relationship of the Vasus, as the deities of fortune and prosperity, with the summer and rains can be thus accounted for : Barley and perhaps wheat(?), at least at a later period, which seem to have been the principal cereals of the people during the Vedic times, are the winter crops of the North-West India. The harvest at the end of the winter led to the storing up of the crop in large quantities. A large crop of the principal food-stuff really formed the fortune of the people during the rains, as it would give them relief at this distressing part of the year. It is for this reason that the Vasus were connected with this season.

Now what caused the Vasus to be connected with Dhanistha ? In Taittiriya Samhitā we find the eight vasus mentioned with four goddesses, called Śravistās, evidently connecting them with one another. As already noted, Vasus have been regarded as the asterism Dhanisthā or its presiding deities. Again the constellation Delphinus which is more or less coincident with

Dhanisthā formed the sky figure of benevolence in the ancient astronomy of the western people (Whyte's *Constellations and their History*, p. 179). This relation between the Vasus and Dhanisthā can only be reconciled if we suppose that, at the time when the hymns were composed from actual observations, Dhanisthā used to rise in the early part of night during the summer and rains. In such a case the vernal equinox must have been passing through the beginning of Krittikā and end of Bharanī. Some of the characteristics of the Vasus, as being Ādityas, their brilliancy and their close connection with Sravistās are suggestive of a representation of a group of stars (constellation) as their physical basis; but nothing can be definitely stated for want of further evidence.

I shall now try to interpret some passages. The boat of the Vasus may be some constellation figure in Delphinus. In Hindu Astronomy Dhanisthā is represented by a drum-like musical instrument called mṛdanga or mardala. In western astronomy we have a dolphin as the constellation figure of Delphinus. However, we find in Dolphin "a natural symbol "at a place where ships can anchor" (Brown's *Primitive Constellations*, Vol. I, p. 185). Hence it is not improbable that the boat might have been a figure in this constellation. Their cow might be the clouds. Their connection with fire may refer to summer heat. The *gouri*-cow may be the red cloud. The horse fashioned by the Vasus from the sun seems to be the sun's rays. Their connection with Rudra, Rudras, and Ādityas simply refers to the neighbouring bodies, such as the sign Sagittarius and other collections of stars (considered as Rudras and Ādityas).

The three passages from the Atharvaveda, above referred to, may thus doubtfully be explained: The first passage may refer to the production of a good crop due to the agency of heaven (pouring down rains), earth (on the soil of which the crops grow), Viṣṇu (the giver of heat and light on which depends the growth of crops), and Prajāpati (as the supreme being who makes a good provision by the profuse growth of crops); they are thus all spoken of as 'cows' which are bestowers of milk as food as they are of crops as provision. The top of the *brahman* (which we take for the sun) probably refers to the position of the asterism Dhanisthā, which is placed at a distance above the ecliptic, the path of the sun. In the third passage Puruṣa (representing Brahman as the Sambatsar—the year) refers to the year, and his birth to the beginning of the year during the rainy season which was connected, as we have seen, with the Vasus.

Lastly, as regards the individual names of the Vasus in the later Sanskrit literature, we may take them as agencies which were considered to be the bestowers of prosperity upon the people. That some of them at least refer to heavenly

bodies is shown by the names of the sun, moon, and probably Āpa (Pūrvaśādhā) and Dhruva (the polar star?). The origin of the idea is perhaps to be traced to the passages in the Rigveda where several deities are qualified as Vasus.

D. Deities connected with entozodiac constellations.

1. *Pūṣan*. The Rigvedic Deity Pūṣan has been invoked alone in eight hymns (I. 42; VI. 53-56; 58; X. 26), with Indra in one (VI. 57) and with Soma in another (II. 40). He is also celebrated along with several other deities in general in some fifty-eight hymns or more. He has also been praised in the Atharvaveda.

In Rigveda we find the mention of a few anthropomorphic characters of Pūṣan. Thus he has braided hair (VI. 55. 2; IX. 67. 11), and has a beard (X. 26. 7). We have mention of *his right hand by means of which he holds a goad* (VI. 54. 10). He is besought to trample on the brand of the wicked by his foot (I. 42. 4). He is a visible deity (VI. 56. 4). We see many physical attributes which point to his bodily strength. Thus he is an *asura* (V. 51. 11), strong and swift (V. 43. 9), vigorous (VIII. 4. 15), powerful (I. 1318.) and resistless (VI. 48. 15). He is described as of irritable temper (*ugra*) (VI. 53. 4). He is bright (I. 23. 14; VI. 48. 16; etc.) and called *agohya*: that is, not to be concealed. His food is gruel (VI. 56. 1). He wears cloth woven of wool (X. 26. 6).

We find his weapons mentioned in several hymns. Thus he holds a golden spear (*vaśi*) (I. 42. 6). He holds a goad (or bridle) in his hand (VI. 53. 1; VI. 58. 2).

He is the *best charioteer* (V. 56. 2, 3). The wheel of his car is indestructible; the nave of the wheel never wears off and the felly never becomes out of order (VI. 54. 3). He is constantly moving his golden wheel (VI. 56. 3).

Pūṣan is *closely connected with the goat*. He has been called *āja*, that is, provided with a goat (I. 23. 13) and *ājāsva* (having a goat instead of a horse) in many places (I. 138. 4; VI. 55. 3, 4; IX. 67. 10; etc.), evidently with reference to his chariot being drawn by goats which is distinctly mentioned in a few places (VI. 55; IX. 26. 8); again goats are called his carriers (VI. 57. 3). He is *the lord of glowing he- and she-goats* (X. 26. 6). The goat is dedicated to him in the horse-sacrifice (I. 162. 2-4).

In several places we are informed of the abode of Pūṣan. He is placed above the mortal world and is equal to other deities in beauty and prosperity (VI. 48. 19). He *appears in the heaven at night towards the morning* (VII. 39. 2) and *goes away at sunrise* (X. 1391.). He knows all the directions (X. 17. 5). His golden boats float on the heavenly ocean and *he acts as a messenger of the sun* (VI. 58. 3).

Pūṣan has been called the lover of his sister (the morning) (VI. 55. 4, 5), the *lord of night* (VI. 55. 5) and, again, the *husband of the heaven and earth which remain together* (X. 17. 6).

Pūṣan has been endowed with several functions. First, he is regarded as the lord or guardian of roads (VI. 49. 8; VI. 53. 1). He is implored to remove all sorts of danger from the path (I. 42. 1-3), to protect one in his path (VI. 54. 9), to allow an auspicious path (X. 59. 7) and so forth. Secondly, he is connected with rains and storms. He is invoked for rain (X. 98. 1). He is said to be the bestower of rain (X. 26. 3), to help Indra in the pouring down of rain (VI. 57. 4), and to milk the heaven with Indra and Mitravaruṇa (III. 57. 2). He has been mentioned as a friend of Indra in one place (VI. 56. 2) and as a brother in another hymn (VI. 55. 5). He has been prayed not to uproot the trees, thus indicating his relation to storms (VI. 48. 17). It is perhaps in connection with his rain-giving function that Pūṣan has been called 'deliverer' (VIII. 4. 15, 16) and son of deliverance (VI. 55. 1). Thirdly, he is called the protector of cattle (VI. 54. 5, 6, 10; VI. 58. 2; etc.) and perhaps of beasts in general (VI. 53. 9). Fourthly, we have distinct reference to his connection with cultivation. He is invoked to preside over the furrow produced by tilling the ground in a hymn dealing with cultivation (IV. 57). We can easily realize the importance of his second and third functions in relation with the fourth. Fifthly, he has been invoked for his gift of beautiful maidens (IX. 67. 10-12).

We also get the mention of Pūṣan as undertaking the ceremony of *varana* in the marriage of the twin-gods Aświns with Sūryā (X. 85. 14). In another hymn (V. 184. 3) we are informed that he swiftly carries Sūryā with the help of the Aświns. Pūṣan brings the six seasons (?) repeatedly with Indu (I. 23. 15).

I shall now try to identify Pūṣan and find out his physical basis.

Following Yāska, who calls him an *Āditya* (Nirukta VII. 9), all Oriental Scholars (as Goldstücker, Roth, and Bothlingk, Wilson, Langlois, Max Müller, Macdonell, etc.) identify Pūṣan with the sun. Max Müller regards him as the sun as viewed by shepherds. Macdonell finds in him the sun manifested chiefly as a pastoral deity.

Although this idea has come down from Yāska and is universally accepted by Orientalists, I do not agree with them and hold a different view altogether.

There is great difficulty in regarding Pūṣan as the solar-deity from the fact that he is called a messenger of the sun and he appears in the heaven at night. Hence he cannot be our sun and must be something else.

We find that Pūṣan, among his various attributes, has

been bestowed with several features which are peculiar to him. Thus he is called the best charioteer: he holds a goad or bridle in his hand; he is variously connected with glowing goats; and he is himself bright. These characters are quite sufficient to lead us to the view that Pūṣan is nothing but the constellation named Auriga of the Northern Hemisphere.

The constellation Auriga is also known from ancient times as a charioteer or Wagoner. The plan of the constellation, as it has been handed down to us, is now drawn in two ways:—(1) It is represented as a charioteer kneeling in his vehicle and often with a kid on his left shoulder (*Century Dictionary*), or (2) it is shown 'as an old man in a more or less sitting posture with a goat and her kids in his left hand and a bridle in his right' (*Encyclopædia Britannica*, 14th edition, article 'Auriga': figure in the article 'Constellation'). We find a whip in place of a bridle in Johnston's celestial globe. Again coming to the derivation of the term 'Auriga' we see that it has been derived from *aurea*, bridle (*Century Dictionary*). Further the principal star α Aurigæ or Capella of the constellation has from ancient times been regarded as the storm-goat. 'The two stars ζ and η in the arm of Auriga were regarded by mariners of yore as affording presages of the weather; and they were so much dreaded, that they are said to have closed navigation at their rising. Hence, in an Epigram of the *Anthologia*, Callimachus says:

Tempt not the winds, forewarned of dangers nigh,

When the kids glitter in the western sky.' (Smyth and Chamber's *Cycle of Celestial Objects*, p. 129).

We find a parallelism of Pūṣan in the Achaian Storm-god Akethorr (Thonthe—Charioteer) whose car is drawn by two storm-goats. (See *Primitive Constellations* by R. Brown, Vol. I, p. 219.)

The Arabs named him the 'Guardian of Pleiades' and the Pleiades were regarded as the seven daughters of Atlas in Greek Mythology. (*The Constellations and their History*, by Rev. C. Whyte, pp. 106, 155.) We thus see why he was invoked as the giver of maidens.

There is sufficient evidence to show that the constellation figures, charioteer and the goat, were recognized by the Babylonians and Chaldeans. (See R. Brown.)

The heavenly ocean referred to above is undoubtedly the milky way in which the constellation is situated. The glowing boats are no doubt the bright stars shining in the milky way. Pūṣan's lordship of the paths perhaps indicates the determination of the direction at night from his position in the sky.

Lastly, we may attempt roughly to determine the time referred to by the hymns sung in praise of Pūṣan. We have seen that he is closely connected with rains and storms and we are told that he used to appear in the heaven at night towards

morning with the Aswins (α and β Arietes) and to go away before sunrise. From these facts we may infer that the vernal equinox was at that time somewhere near the Pleiades, and that when the sun used to rise in the heaven after the summer solstice and towards the autumnal equinox in the rainy season the Auriga used to appear at night in the west with the Aswins and set just before the morning on the western horizon. This used to happen somewhat between 1200 to 1500 B.C.

2. *Prajāpati*. The name occurs some five times in the Rigveda. In one (X. 169. 4) the sage Prajāpati seems to have been meant. In another place the sun was qualified as *prajāpati* (that is, lord of living beings) (IV. 53. 2). In the remaining places he has been invoked as a distinct deity, either simply with others (IX. 5, 9) or for progeny (X. 85. 4) or for efficient semen for conception (X. 184. 1). Thus he has been considered as the bestower of good progeny only.

Coming to the White Yajurveda, we find him mentioned some twenty times. He has been offered oblations some ten times. Elsewhere he has been prayed for strong male impregnat-er and vigorous son, who may himself be a father (8. 10). He has also been invoked for guarding treasure (8. 17) and for coming on the surface of the earth (13. 17, 24). He has been stated to be one than whom there is none more mighty and is said to pervade all existing creatures (8. 36). He is also said to exist in uttered speech (8. 54) and to be the lord of the world (18. 43). Prajāpati has been designated as *ṣoḍaśī* (that is, consisting of sixteen parts) and is said to maintain three great lustres (the sun, the moon, and fire according to the commentators) (32. 5). We are also told that none was born before him and that he created the whole world (32. 5). Again, we are informed of the birth or origin of Prajāpati: he is born from the timely germ laid down by the strong, self-existent first one within the mighty (vast) flood (space) (23. 63). Lastly, he is said to move in the womb, remaining unseen he becomes born (manifests his existence) in various ways. The intelligent (people) discern his origin and in him alone stand all existing (living) creatures (31. 19). Here we find that Prajāpati occupies a very prominent place and the conception of the sphere of his action has been greatly extended as the creator and supporter of the living world.

We find nothing important concerning the deity in the Black Yajurveda.

We have plenty of information regarding this deity in the Atharvaveda. We find him closely connected with generative powers and gift of progeny (VI. 11. 2; VI. 20. 1; XIX. 17. 9; XIX. 18. 9; XIX. 19. 11). He is said to have created all, the highest, middle, and the lowest (XII. 1, 61); he is the lord of creation and protector of all creatures; with a half (of his power) he generated all existence (X. 8, 13); he maintains all

the worlds (X. 7. 7) ; he fulfils what is deficient on the earth (XII. 1, 61). He has twice been called the first-born of righteousness (IV. 35. 1 ; XII. 1, 61). He is connected with thunder in several ways : His voice is thunder (IX. 1, 10, 20) ; he manifests himself to his creatures by thundering in a clear sky (IX. 1, 24). He is again connected with time : Time is the lord of all and was father of Prajāpati (XIX. 53. 8) ; time was Prajāpati in the beginning and generated progeny (XIX. 53. 10). He is said to have cooked the rice-mess for Brahman (IV. 35. 1) ; hence he was regarded as distinct and different from Brahman. Again in connection with the release of a house, we are told that the dwelling house was fixed and made by Prajāpati, who also made the forest trees give rise to young plants (IX. 3, 11). In a few hymns we find that Bringer and Gatherer are his two distributors (III. 24. 7), that *Sabhā* and *Samiti* are his two daughters (VII. 13. 1) ; *Ekāṣṭaka*, the mother of Indra and Soma, is the daughter of Prajāpati (III. 10. 13). Lastly, in a passage connected with shaving (VI. 65. 2) we find it stated that let Aditi shave the beard, let the waters wet (it) with splendour and let Prajāpati nurse it. Here we have a further step in generalisation of the functions of the deity.

We have voluminous references to the term Prajāpati in the Brahmanic literature. Practically all the objects then known or conceived of were called Prajāpati, perhaps from the idea that all their attributes (or their very existence) were due to him, as the creator or sustainer of all. Thus, the fire, sun, wind, moon, earth, and heaven have been designated as Prajāpati ; he has distinctly been said to represent 'all the gods' ; he has again been identified with *Brahman* and *Ka* ; he has been called the 'one' and 'all' ; he is the *puruṣa* (supreme being) and is *citpati* (lord of the soul). Again, the year has been designated by the same name. He has again been made to represent the eagle (perhaps the constellation Aquila) and the rays of light (perhaps the stars or planets). He is said to reside in the voice, speech, mind, life, soul, and so forth. He is connected with religious ceremonies and ceremonial articles. Again, many sages, as Vasistha, Jamadagni, have been regarded as Prajāpati. We further find a large number of epithets assigned to him : He has been called *visvajit* (conquerer of all), *hiraṇyagarbha* (gold-wombed), *visvakarma* (creator of all), *anirukta* (unspeakable), *amṛta* (immortal), etc. Lastly, we find that Rohiṇi (the star Aldebaran) is the daughter of Prajāpati. The *Visraderas* are his sons.

We have mention of Prajāpati in the old astronomical works of the Hindus. He is the lord of Rohiṇi (Aldebaran) (Āraṇyaka-sl. 25 : Yājñajyotiṣa 32). There is a star of the same name (β Aurigae) mentioned in Soma-siddhānta (4. 6, 11). Brahma-siddhānta (2, 176), Vṛddhavasistha-siddhānta (8, 11),

and Sūrya-siddhānta (8, 20); he is placed five degrees to the east of Brahmahṛdaya (Capella).

It is evident from what we have traced from the Rigvedic times down to the Brahmanic period that there has been a gradual change in, or rather a widening of the sphere of conception of the deity. Beginning with a limited idea as a bestower of good progeny, his sphere of power and benevolence has been modified and greatly widened, and he is ultimately considered as the supreme universal soul, the Brahman. (See Macdonell's *Vedic Mythology*, p. 119.) The bearing of Prajāpati to the celestial bodies as we find in the astronomical works will be discussed below.

There is a strange story about Prajāpati told in the Maitrāyaṇī Saṃhitā (4. 2, 12) which is also repeated in Aitareya Brāhmaṇa (3, 33), Śatapatha Brāhmaṇa (1. 7. 4. 1), and Tāṇḍya Brāhmaṇa (8. 2, 10). The story seems to have its origin in the Rigveda (1, 71. 5; X. 61. 5-7). The purport of the story runs thus: Prajāpati, becoming passionate of his daughter Ūsas (dawn), followed her. She transformed herself into Rohiṇī (red cow or red deer) whereupon Prajāpati changed himself into a similar beast. 'Rudra (Mṛgavyādha) incensed at this aimed his arrow at him, whereupon Prajāpati promised to make him lord of beasts if he did not shoot? Let us now see what we have actually in the Rigveda.

The first passage (1, 71. 5) from the Rigveda is rather obscure. Taking *Ka* to represent Prajāpati (as we find in X. 121. 10) and not '*karoti*' as done by Sāyaṇa, we translate it thus: when *Ka*, sticking to the great (vast) father Heaven, comes down, the archer throws the brilliant arrow at him by force. The Deva (that is, *Ka*) deposits his vigour in his daughter. The three remaining passages run thus: (Speaking of Visvadeva) He, whose works of splendour performed by impulse were renowned, dispelled for man; what the active one threw to his daughter, grows again (X. 61. 8). In the act done by the Father by passion with the young woman near the middle (region), they paired and discharged *retas* (germinal fluid) into the high (sacred?) abode (*yoni*) of good-workers (performers of religious ceremonies) (X. 61. 6). When the Father paired with his daughter, he came in contact with the earth and discharged the semen. The good-working (that is, performer of religious ceremonies) Devas created Brahman, the Vāstuspati, the preserver of Vratas (religious vows) (X. 61. 7).

In interpreting the real significance of the story, we shall first consider these three passages. We find in the Rigveda that Prajāpati is connected with the granting of good progeny. Knowing that the greatest percentage of conception occurs in the spring, this season may rightly be taken to be the period of the benevolent act on the part of Prajāpati. The vernal

equinox is connected with the beginning of the spring. As this point used to be calculated as the beginning or end of a year in the Vedic times and, as Prajāpati is connected with the time in the Atharvaveda and is identified with the year (*sambatsara*) in the Brāhmanas, we may find some reason why Prajāpati is considered as the bestower of good progeny. As already noted, *Ka* is Prajāpati and Father is the same deity. His daughter is Dawn (as interpreted in Maitrāyaṇī Saṃhitā and other later works). The archer is Mrgavyadha (identified as one of the Rudras and with the brilliant star Sirius). Taking the physical basis of these, we may reasonably believe that Prajāpati, for his physical basis, must be some celestial object (constellation figure). We have some other evidences for the same. Thus, he is said to maintain three lustres, which the commentators hold as the sun, moon, and fire. As such an idea does not seem to be consistent, we take them as three brilliant stars. Again, we find in Śatapatha Brāhmaṇa (2. 1. 2, 8) that Mrgasīras (the star λ Orionis) lies in the head of Prajāpati. As the same star lies on the head of the ancient constellation Orion, we may conclude that Prajāpati was more or less coincident with the same constellation.¹ The name of λ Orionis, signifying the head of a deer may make us think that the actual configuration, at least at a later period, was that of a deer (*rśi*), as we find in the later modified version of the story. When the vernal equinoctial point was situated above or near Orion, the constellation used to appear in the dawn and close to the horizon at the beginning of the spring. We can thus explain the pairing of Prajāpati with his daughter and coming in contact with the earth. The discharge of the small quantity of germinal fluid is metaphorically the light showers of rain not uncommon at this time of the day. In the Atharvaveda Prajāpati is connected with thunder. In the later version of the myth, as told in Maitrāyaṇī Saṃhitā and Brāhmanas, Dawn is made to transform into Rohiṇī (the brilliant star Aldebaran). This can also be explained when we remember that the vernal equinoctial point moved back towards the beginning of the sign Taurus and came to be placed close to the star Aldebaran at a later period. As regards the archer, who is identified with the dog-star Sirius, placed in the constellation Canis major, we have no distinct evidence regarding its constellation figure, as the name implies. The star is placed in such a position that it is in the same line with the three brilliant stars of the belt of Orion. These three may represent the arrow thrown by the archer.

In the astronomical works, we have the name of a star, viz. Prajāpati which is identical with β Aurigae. This star

¹ In Homer's *Odyssey* (XI. 310) Orion has been described as the Goodliest of men and he is said to be loved by Dawn.

is placed at a great distance from Orion on the northern side of the ecliptic. It is placed near another star called Brahmahrdaya (Capella). In Ramāyana (6. 4. 48) we have mention of a *Brahmarāsi* as sacred. Perhaps, when the idea of the sages changed at a later period and Prajāpati was identified with Brahman, the constellation figure was also changed and made to embrace these stars. This is the only explanation that I can offer for the star β Aurigae being called Prajāpati and Capella as Brahmahrdaya.

Lastly, the origin of the name of the sign Mithuna may have something to do with the union of Prajāpati with Dawn.

The time of the origin of the myth may be roughly dated at about 4200 B.C. and the later modification at about 3500 B.C.

3. *Maruts*. The Maruts are invoked in thirty-three complete hymns and in most of the passages of two other hymns. They are invoked with Indra in one hymn, although they are associated with him in various ways. They are also addressed with Agni in three hymns and with Vāyu in three passages of a hymn. Lastly, they are praised or otherwise mentioned in more than 150 places alone or with other deities.

The Maruts are 3×7 (I. 133. 6), 7×7 (V. 52. 17) or 9×7 or 63 (VII. 96. 8). They are numerous, although they have the same name (VIII. 20. 13). They remain in a group (*gaṇaśṛiṅgaḥ*) (I. 64. 9; V. 60. 8), being associated together (I. 168. 4). They have the same form (I. 168. 9), are of the same age (I. 165. 1; V. 58. 5), none being eldest or youngest (V. 59. 6) and equally become pleasant (I. 186. 8) or enraged (II. 34. 5; VIII. 20. 2, etc.). They are called leaders in many passages (I. 39. 3; I. 64. 4; V. 54. 10; etc.).

The Maruts are visible (I. 64. 19) and are high in position (I. 64. 2; V. 52. 13; etc.). We have mention of their firm body (I. 64. 3), with head and fire-like tongue (I. 44. 14; I. 166. 11), shoulder (VII. 56. 13; etc.), strong arm (V. 57. 6; VIII. 20. 12), firm hand (I. 37. 3; I. 38. 11), and leg (V. 54. 11). The most characteristic bodily feature of the Maruts is their brilliancy, which is referred to in many passages by different epithets. They are brilliant (I. 19. 3, 5, 6; I. 37. 4; V. 52. 6; V. 57. 5; VII. 56. 16; etc.), self-brilliant (I. 37. 2; VI. 48. 12), brilliant like lightening (I. 172. 1), fire (VI. 662) and the sun (I. 64. 2). They are moon-like (V. 57. 8) and golden in colour (I. 165. 12). They are surrounded by rays of light (I. 19. 8; V. 52. 9). Again they are dark and ruddy (V. 57. 4), probably referring to the darkness due to cloud (or night) and brightness due to lightening (or day). They are spotted (I. 165. 13; II. 34. 11; VIII. 7, 7) like a deer (I. 64. 8). Their close connection with lightening will be referred to later when I consider their works. Of other physical features of the Maruts, we know of their fearful appearance (I. 19. 5; I. 64. 2; I. 169. 7; V. 56. 2), youthfulness (I. 64. 2; etc.), great strength (I. 19. 5;

I. 37. 7 ; I. 64. 9 ; I. 186. 8 ; V. 5. 6. 3 ; etc.), and their movements, which will be dealt with in connection with their works. Several personal traits of the Maruts are also known to us. They are pleasant (V. 54. 12), free from malice (I. 19. 3), and attractive to all (III. 26. 5) ; but at the same time they are irritable (I. 19. 4 ; I. 94. 12 ; VI. 66. 6 ; VII. 56. 7 ; etc.). They are playful (I. 37. 1, 5 ; V. 60. 3). They are unconquerable (I. 19. 4) and unobstructive (I. 6. 8 ; I. 186. 8). They are roarers (I. 37. 10 ; I. 166. 1 ; VIII. 7. 3 ; VIII. 7. 7 ; etc.), like a lion (I. 64. 8 ; III. 26. 5) and give rise to shaking or trembling (I. 37. 6 ; V. 54. 4 ; V. 87. 1 ; VI. 48. 20 ; VIII. 20. 14, 16). These latter characters are no doubt referable to thunderstorm closely connected with their works. They are called iron-tusked boars (I. 88. 5).

Two other characteristic features of the Maruts are their ornaments (decorations) and implements, which are unparalleled in their variety by those of other Rigvedic deities. They have decorative salves or markings on the body (aṅgi) (I. 85. 3 ; I. 19. 2 ; V. 53. 4 ; VIII. 20. 11 ; etc.) of ruddy colour (II. 34. 16), garland round the neck (V. 53. 4), golden ornament on the breast (I. 64. 4 ; II. 34. 8 ; V. 53. 3, 4 ; V. 53. 3 ; VII. 56. 13 ; VIII. 20. 10, 22 ; X. 78. 2), turban on the head (VIII. 7. 25), golden (V. 57. 6) and shaped like the two horns of a cow (V. 59. 3) and have a bracelet round the hand, armlet round the arm (I. 66. 9 ; V. 58. 2), and anklet round the leg (V. 54. 11). Of their implements, the weapons in general are mentioned (I. 39. 2 ; VII. 56. 13 ; etc.). There is also mention of stone implement (I. 172. 2 ; V. 54. 3). Of special weapons, we have bow and arrows (I. 64. 10 ; V. 57. 2), thunderbolt (V. 54. 3 ; VIII. 7. 22) mentioned as held in the hand, axe (vāṣī) (I. 19. 2 ; V. 53. 4 ; etc.) of gold (VIII. 7. 32) and javelin (I. 37. 2 ; V. 60. 3 ; V. 57. 1 ; etc.). The javelin is bright (I. 31. 1 ; I. 64. 11 ; I. 85. 4 ; I. 168. 4 ; II. 34. 5 ; V. 55. 1 ; VI. 66. 11 ; etc.), is carried on the shoulder (I. 64. 4 ; V. 54. 11 ; V. 57. 6), and is thrown by them (V. 52. 6). They are called brilliant from javelin or as associated with lightening as javelin (ṛṣti-vidyuta) (I. 168. 5 ; V. 52. 13). There is also mention of a toothed weapon (I. 166. 6) and of a golden armour (V. 55. 6).

The Maruts' cars are golden (V. 57. 1 ; VIII. 20. 8) with golden wheels or felloes (I. 64. 11 ; I. 88. 5). The lightnings are as if the cars of the Maruts (III. 54. 13). Their cars run over the clouds (VIII. 7. 18) and are connected with clouds from which rain goes down (I. 87. 2). There are a bow and other weapons on their cars (VIII. 10. 12). Their cars are visible during rain (V. 53. 5). In one passage (VI. 66. 7) their cars are said to be without a charioteer, without steeds, and to be givers of rain. Their cars are drawn by female steeds which are spotted (I. 19. 2 ; I. 89. 7 ; II. 34. 3, 4 ; III. 16. 6 ; VIII. 7. 28 ; etc.), golden footed (VIII. 7. 26) and are brown and ruddy in colour (I. 88. 2 ; VIII. 7. 28 ; etc.). Their cars are also said

to be drawn by *nigut* horse (usually regarded as Vāyu's steed), *arusin* (usually taken as the sun's steed), and *hari* (the steed of Indra) (V. 52. 11; V. 54. 8; V. 56. 7). Once (V. 58. 1) the Maruts are said to have yoked the winds as steeds to their pole. Lastly, we find mention of rein and whip (I. 37. 3; I. 38. 12).

The Maruts are the sons of Rudra (I. 114. 6, 9; II. 33. 1; V. 52. 16; etc.). They are also regarded as the followers of Rudra (I. 122. 1). Their mother is spotted (*prṣṇī*) (I. 38. 4; I. 89. 7; V. 52. 16; V. 60. 5; VIII. 7. 3; etc.). They are again said to have a cow as their mother (I. 85. 3) or friend (VIII. 20. 8). Their mother is *Rodasī* (I. 167. 5, 6; V. 61; 12). *Rodasī* is Rudra's wife (V. 56. 9).

The Maruts are associated with several deities in their works. They are closely connected with Indra (I. 101. 8; I. 169. 1; etc.), who is their brother (I. 170. 2), friend (III. 51. 8, 9), and helper (III. 35. 9; I. 168. 7). They are the followers of Indra (V. 57. 1) and appear with Indra (V. 87. 2). They are also connected in their works with Varuṇa (VIII. 81. 1), Viṣṇu (VII. 3, 21), and Vāyu (VIII. 7. 4). Lastly, Agni is a great favourite of the Maruts (VIII. 103. 14) and they are dependent upon Agni (III. 26. 5).

Coming to the consideration of their abodes, we find them invoked to come from the heaven (V. 53. 3; etc.). They live in the same place (I. 165. 1; VII. 56. 1). Their residence is luminous (I. 19. 6; I. 161. 14; V. 52. 5; etc.). They are said to remain in the highest place (V. 87. 9) and travel in the highest region of the heaven (V. 59. 7; VIII. 7. 7). Again, they are said to live in the upper, middle, and lower region of the heaven (V. 60. 6), or between the heaven and earth (sky ?) (I. 122. 1; I. 38. 2). Once (V. 52. 9), they are said to reside in the Paruṣṇī river.

We are told something of the birth and origin of the Maruts. They are said to have been born in the heaven (I. 64. 2, 4). Rudra gave birth to them in the womb of *Prṣṇī* (II. 34. 2). Their birth-place is fixed; they come out of their mother (I. 37. 9). Again, they are said to arise from lightening (I. 23. 12); Vāyu is said to have generated the Maruts for rain and for giving rise to rivers (I. 134. 4); but elsewhere (I. 64. 5) Maruts are said to have generated Vāyus and lightening. The Maruts were born together at the same time (V. 55. 3; V. 58. 5), and were born for pouring down water (V. 61. 14).

The characteristic works of the Maruts are exhibited in the pouring down of rain with accompanying thunder and storm. Firstly, they are said to send clouds, full of water (V. 56. 4), to make the clouds move (I. 19. 7; V. 54. 4), cleave the clouds (V. 54. 5; V. 52. 9; VII. 56. 17; etc.). The clouds are often referred to as a 'cow' (II. 34. 5; etc.). They are said to milk the watery place of the movable (clouds) (I. 64. 11).

They are also said to disperse the darkness (I. 86. 10), or conversely, they are said to cause darkness during the day by clouds (I. 37. 9). Indra urged them to kill the demon Kṛṣṇa (VIII. 96. 14). Secondly, the downpour of rain is attributed to them. Various epithets are assigned to them in this connection (*vr̥ṣan*, I. 169. 3 : II. 33. 13 : V. 52. 3 : VII. 58. 1 : VIII. 20. 12 : *vr̥ṣṇa*, VIII. 20. 9 : VIII. 7. 23 : *akṣamat*, VI. 66. 4 : I. 64. 2 : I. 168. 2 : etc.). They make the rain fall on the ground (V. 54. 2) from above (V. 55. 5), and soak the ground (I. 37. 9 : I. 64. 5 : etc.). They hide the eyes of the sun (V. 59. 5). They milk the watery place of the *pr̥ṣni* (II. 34. 10) or the heaven (I. 64. 5). The rain follows their path (I. 85. 3). They make the rivers flow (V. 53. 7 : X. 78. 6), and the seas roll (I. 19. 7, 8), soak the herbs with water (VIII. 7. 22), and know the medicinal herbs (VIII. 20. 25, 26). Thirdly, they are closely associated with lightening and thunder. They originate lightening and wind (I. 64. 5). They remain with lightening (V. 54. 2). The lightening follows them (I. 37. 8 : V. 52. 6). When they give rise to rain, the lightenings make their appearance (I. 168. 8). The roaring of Maruts, which we have already discussed above, indicates thunder. Their roaring makes the high mountains shake (V. 60. 3) and makes the people tremble with fear (I. 38. 10). They roar when they desire to pour forth rain (V. 54. 12). Fourthly, the storm is indicated by their movements. We have indications of violent storm in the Rigveda. The Maruts ascend to high places while roaring (VIII. 7. 17). They spread all round as they move (I. 37. 10). Their movements are fierce (I. 37. 7) and unobstructible (I. 64. 3). Their movements are rhythmic (V. 52. 3 : V. 52. 8) and slow (I. 85. 6). They travel through night (V. 52. 3). Their movements cause the earth to tremble with fear (I. 37. 8 : V. 60. 2), dislodge fixed objects (I. 64. 3, 11), uproot the trees in the forest (I. 39. 5 : I. 64. 12 : V. 58. 6 : etc.) like an elephant (I. 64. 7), and dislodge the mountains (I. 85. 4 : V. 54. 1). They throw dust all round (I. 64. 12).

There are other minor works of the Maruts. They are destroyers of heat (V. 54. 1). As spoken in the case of several other deities, they are said to have placed the sun and the heaven and earth in their places (VIII. 7. 22). They have also fashioned the luminous path for the sun (VIII. 7. 8). They are said to hold three luminous bodies in heaven (V. 29. 1). The Maruts preserve the strength of Trita (VIII. 7. 24) who roars at the time of rain (V. 54. 2). They killed the enemy of Trita (II. 34. 10).

There is one benevolent deed on the part of the Maruts. This is depicted in several passages (I. 85. 10, 11 : I. 88. 4 : V. 52. 12 : V. 57. 1). When Gotama became thirsty, the Maruts prepared a fountain for him in the heavens and gave him water to drink. This deed is also assigned to the Aśvins (I. 116. 9).

The Maruts have been requested to drink Soma in many passages of the ninth book. They have also been praised for a son fashioned by Vibhva, the middle one of the three Ribhus.

The Maruts are mentioned in most of the Brāhmaṇas. They are mentioned as seven in number (Śatapatha V. 5. 1, 12; 5. 4. 3, 17; Taitt. 1. 6. 2, 3; etc.) or 7×7 (Yajurveda 17, 80-85; 39. 7; Śatapath. 9. 3. 1, 28). They are regarded as the leaders of the gods (Tāndya 14. 12. 9; 21. 14. 3; Taitt. 2. 7. 10. 1) and their courtesans (Śatapatha. 2. 5. 1. 12; etc.; Aitareya 1. 9; Tāndya 6. 10. 10). They are associated with water (Kauṣ. 5. 8; Gopatha Uttar. 1. 22).

Taking into account the work of the Maruts, connected with lightening, thunder, rain, and storm, they are taken to represent the storm-gods. Plunket, in his *Ancient Calendars and Constellations*, pp. 173-4, consider the Maruts to represent the number of days that used to elapse between the crescent half-moon, blazing on the brow of Rudra and the full-moon of the summer solstice at about 4000 B.C. or earlier. But a difficulty arises when we find the Maruts as born together at the same time, and working together. Although the same traits are more or less applicable to Indra with whom they are closely associated in their works, a striking difference is discernible between the nature of Indra and of the Maruts. In no deity of the Rīgveda do we find such a detailed account of anthropomorphic characteristics, including decoration, ornaments, and weapons, as we get in the case of the Maruts. This leads one to the idea of some constellation figures representing these deities. Further, their birth from a spotted mother (which we take to represent the heaven studded with stars), their abode in the heaven, the brightness of their ornaments, decorations and weapons, and their spotted steeds all go to confirm the same view. But we are unable to advance further than this, as we have no materials for finding out which constellation figures they actually represent. It is quite possible that they might have represented a number of small figures comprising some brilliant stars in the neighbourhood of the sign Sagittarius, which we have already taken to represent the god Rudra. The river Paruṣṇī perhaps represents the milky way lying near by. The association with Indra shows that the summer solstice was placed close to them. We can easily interpret all the works which are common to both the Maruts and Indra.

4. *Vṛṣākāpi*. This term occurs several times in X. 86. He is Indra's favourite (X. 86. 1, 12). He is foremost in stoutness (X. 86. 1) and is a tawny beast (X. 86. 3). He has been considered as very destructive and a desire is expressed to behead him (X. 86. 5). He is said to have been beaten by a dog chasing a boar (X. 86. 4). When Indra and Vṛṣākāpi climb up, the evil-doing beast disappears (X. 86. 22). It has been prayed that Vṛṣākāpi may receive a dagger, belt, and a cart load

(X. 86. 18). Lastly, his wife is mentioned and her bull was to be partaken of by Indra (X. 86. 13). In Gopatha Brāhmaṇa (Second part, 5. 19), he is regarded as an āditya.

The term 'Vṛṣākapi' has been shown by Hornell to be a Dravidian word signifying 'male ape'. But considering the above characteristics depicted in the R̥gveda, we are inclined to take him to represent the constellation Orion. The dog biting his ear is the star Sirius in the constellation Canis Major. The boar chased by the dog is the constellation Lepus. Lepus is ever chased by Sirius (see Brown's *Primitive Constellations*, Vol. I, p. 97).

VII. ATMOSPHERIC OBJECTS.

1. *Vāyu and Vāta.*

Vāyu is invoked in three complete hymns and parts of eight others. Vāta is celebrated in two short hymns. They are, in addition, praised or otherwise mentioned in some hundred and fifty passages. Their names sometimes occur together in the same passages (VI. 50. 12 : X. 90. 13 ; etc.). Vāyu has also been invoked with Indra in one complete hymn, in several passages of another hymn, and in some fourteen scattered passages. He has also been praised with Agni, Sūrya, Asvins, Viṣṇu, Maruts, and some other deities. Vāta is associated with Parjanya.

Vāyu has usually been addressed as a single person, but in one passage (II. 11, 14) there is mention of many Vāyus. The word Vāta has been used in the singular, the dual (*rātāu*) (X. 137. 2) and many times in the plural (*Vātāḥ*).

Vāyu is regarded as the chief of the gods (VIII. 26. 25). He is the son-in-law of Tvastr (VIII. 26. 21). Vāta is regarded as the messenger of the gods (X. 137. 3).

Vāyu is visible (I. 2. 1) and white in colour (VII. 91. 3). Vāta is regarded as widespread (X. 89. 11) ; he is recognised by his movement as his form is not visible (X. 168. 8). Of other physical features, we find that Vāyu is not still (X. 168. 3), he is always moving (II. 11. 3), and is swift (X. 106. 7). This movement is specially connected with Vāta in many passages. The swiftness of Vāta has been used many times as a standard of comparison for the motion of many objects (V. 31. 10 ; VII. 36. 3 ; VIII. 1. 11 ; etc.). Vāta is said to blow (I. 28. 6 ; X. 137. 3) during rain (V. 83. 4). He is also said to move to and fro (IX. 97. 52). He travels in the sky (II. 38. 2) and comes from the sky (I. 161. 14). He blows downwards (X. 60. 11). He has been requested to blow without heat (VIII. 18. 9) and not to blow unfavourably (I. 29. 6). He cannot be held fast (X. 95. 2). The strength of Agni is compared with that of Vāyu (VI. 4. 5). Vāta is said to roar in the sky (IV. 22. 4) as thunder (X. 168. 1). We know Vāyu's wrath (VII. 62. 4).

Vāyu has a chariot (VII. 90. 1). The chariots are one hundred in number (II. 41. 1). The chariot is golden-fellied (IV. 46. 4). Indra is the charioteer of Vāyu (IV. 46. 2 ; IV. 48. 2). The steeds of Vāyu's chariot are known as *Niyut* (I. 134. 2 ; II. 41. 1 ; III. 35. 1 ; IV. 46. 2 ; VII. 23. 4 ; etc.), perhaps referring to their great number. They are said to be ninety-nine (IV. 48. 4), a hundred (IV. 48. 5 ; VII. 92. 5), a thousand (I. 135. 1 ; IV. 48. 5 ; VII. 92. 1 ; etc.) or ten thousand (I. 135. 3)

in number. Again, Vāyu's chariot is drawn by a pair of red or ruddy horses (I. 134. 3). Vāyu's steeds are strong (I. 134. 1; I. 135. 9), stout like a bull (I. 135. 9), swift (I. 135. 9) like mind (IV. 48. 4), and have wide flanks (VIII. 26. 23). They carry Vāyu between the heaven and earth (I. 135. 9).

As regards Vāyu's origin, we are told that Rodasī generated him for wealth (VII. 90. 3). Again he is said to have arisen from the life (*prāṇa*—vital force) of *Puruṣa* (Divine Being) (X. 90. 93). Maruts, again, gave origin to the Vātas (I. 64. 5).

Vāyu and Vāta are connected with several deities in relation with their works. Vāyu is connected with the Maruts. He has originated the Maruts for the production of rain and rivers (I. 134. 4). Vāyu travels with the Maruts (VIII. 7. 4) and the Maruts go up with the help of Vāyu (VIII. 7. 3). Dawns spread the light for Vāyu (I. 134. 4). The Asvins drink Soma at the end of the day with Vāyu and Niyut (III. 58. 7). The heaven and earth follow Vāyu (IV. 48. 3). Agni is made to appear by Vāyu (V. 19. 5). But Vāta is more intimately associated with Agni: and this association is depicted in various ways. Agni runs along the path of Vāta (II. 14. 3; V. 5. 7). Vāta remains round the fire (X. 115. 4). Vāta blows towards the flame (I. 148. 4). Agni unites with the force of Vāta (IV. 7. 11). Vāta is also connected with Varuṇa (VII. 87. 2). Varuṇa knows the path of Vāta (I. 25. 9).

We now come to the works of Vāyu and Vāta. The clouds are made to go up by the Vāyus (VIII. 7. 3). Vāta, again, is sent by the roaring clouds (IV. 17. 12). Vāta spreads the cloud (I. 116. 1). Vāyu is the friend of water (X. 168. 3). Vāta is the downpourer of rain (I. 122. 3; VII. 40. 6) and is the soul of the world in this respect (VII. 87. 2). He agitates the water by his force and separates the weeds from the water in a pool (X. 168. 5). Vāta makes the forest tremble (V. 78. 8; X. 23. 4) and shakes the fixed objects (X. 168. 2). He breaks down the trees as he comes (X. 168. 1).

We are also informed of something more about them. Vāyu dries everything (VI. 37. 3). Vāta remains in our body as the soul (I. 34. 7). Vāta is regarded as a medicinal agent for the living world (X. 137. 3). Vāta has been addressed for bringing nectar from his storehouse (X. 186. 1), for bringing medicine (I. 89. 4; X. 137. 3), for prolongation of life (X. 186. 1), and for protection from the disturbances of the sky (X. 158. 1). He has also been invoked for fanning the cows (X. 169. 1). Deadman's breath is said to come to Vāyu (X. 16. 3).

We have numerous references to Vāyu in the Brāhmanas. Vāyu is regarded as the presiding deity of Svāti (one of the lunar asterisms) in the ancient astronomical treatises.

It is quite evident that Vāyu is a personification of wind, particularly in connection with rain and thunder. Vāta represents the functional principle (element) of wind.

2. *Dāsas and Asuras killed by Indra.*

Scattered through the Rigveda are found a large number of names, occurring from once to many times, many of which are qualified as *dāsas*. I propose dealing with them here in alphabetical order.

(1) *Atka*. This name occurs once only (X. 49. 3) : and we are told that Indra killed *Atka* for the benefit of Kavi by beating him. The word also occurs elsewhere (I. 122. 2 : V. 55. 6 : V. 74. 5), where it is used for a garment, cloth or covering. In Naighantu, the meaning of the word is given as a flash of lightning. The name Kavi may perhaps refer to Bṛghu's son, the author of IX. 47-9 and 75-9. We are inclined to believe that the demon is here a personification of the cloud, thought of as envelope of the rain-water, or, following the meaning given in Naighantu, the deity of lightning.

(2) *Anarśani*. The name occurs once only (VIII. 32. 2). We are informed that Indra, having made the waters flow, killed *Anarśani*, *Piprudāsa*, and *Ahiśura*. The word *anarśani* may be derived from *na*, not, and *arśani* from the root *ṛs*, to break, to make to flow (as *arśa*, hæmorrhoid) and thus to mean that which does not cause to flow : or conversely, that which stops the flow. Hence we are led to conclude that *Anarśani* may be the deity presiding over drought. Whether the term imports the same idea as *śuṣṇa* or not will be discussed in connection with the latter. Following Johansson, Macdonell believes it to preserve 'a historical reminiscence of a prominent terrestrial' foe (*Vedic Mythology*, p. 162).

(3) *Arbuda*. The term occurs seven times. In one place (X. 67. 12) *Arbuda* is said to be possessed of a large collection of water. Indra beheaded *Arbuda* with the help of Bṛhaspati (X. 67. 12). We are also told that Indra strengthened by Trita, killed *Arbuda* (II. 11. 20) and that he killed *Arbuda* with his face looking down (V. 14. 4). We are further informed that he attacked *Arbuda* with his feet (I. 51. 6) and pierced him with cold (ice) (VIII. 32. 26). Lastly, we see that Indra killed *Vṛtra* with his big bow, killed the deceitful *Arbuda* and *Mṛgaya*, and drove out the cows from the mountain (VIII. 3. 19).

The term *arbuda* occurs in the Gaṇapāṭha of Pāṇini. Yāska gives two meanings of *arbuda*—cloud (3. 10. 1), and an embryo, fortnight old (14. 6). According to Roth (his Wörterbuch) the term also means snake, or a snake-like swelling. Macdonell (*Vedic Mythology*, p. 161) places *Arbuda* in the same category as *Vṛtra*. Considering that *Arbuda* is possessed of a large mass of water and following Yaska's explanation of the term, we may take it as the personification of cloud. Further, the piercing of *Arbuda* with ice (if we can take *hima* to mean ice) evidently points to the formation of ice on the top of the mountains upon which the clouds impinge, and the driving out

of cows from the mountain may either simply refer to cows or figuratively to small collections of clouds on the mountain sides. Indra's bow is the rainbow. It is beyond doubt that the phenomenon depicted in some of the passages at least refers to what actually occurs in the higher altitudes. Large masses of ice accumulate on the top of the mountains above the snow line in the winter. As the temperature of the atmosphere rises on the advent of the summer, the ice sheets begin to melt and clouds are also formed on the top of the mountains in close proximity to the snow. The setting free of rains from the accumulation of water-vapour in the form of the above-mentioned clouds on the top of mountains completes the picture. Hence we may take *Arbuda* as mountain clouds which adhere in large masses to mountain peaks and flanks about the snow line.

(4) *Aśna*. The word occurs seven times in the Rigveda. In two passages we are told that Indra killed *Aśna* with ease (II. 14. 5) and destroyed his residence, after having made the dawn disappear by the sun (II. 20. 5). In another place (VI. 4. 3) Agni is said to have destroyed the dwelling of *Aśna*. In three other places (I. 164. 1; I. 173. 2; X. 27. 15), the term is applied to Indra as the 'consumer' of the offerings: in another (VIII. 2. 2) it means the stone (which was used to grind the Soma plant to extract the juice). The term occurs in Nirukta (2. 21. 2) as a synonym of the cloud. Taking into consideration that *Aśna* is killed and his residence is destroyed at sunrise by Agni (celestial fire, the sun), and Yaska's explanation of the term, we are inclined to believe that *Aśna* represents the 'morning fog'. As soon as the sun rises and the temperature of the atmosphere becomes higher, the minute water particles of the fog evaporate and the fog clears away.

(5) *Ahi*. The term occurs more than fifty times. Whereas it is principally used for a distinct personality as *Ahi*, it is also used to qualify *Vytra* in five places (I. 32. 5, 8, 11; I. 51. 4; I. 80. 13). Leaving aside these latter passages for the present, I shall study the characteristics of *Ahi* as noted in the others.

Ahi has been variously described as obstructing or covering the waters (I. 51. 4; II. 11. 2; II. 19. 2; III. 32. 11; V. 30. 6; VI. 72. 3; VII. 21. 3; X. 111. 9), lying in water (II. 11. 5) or lying in a watery region (IV. 17. 7). He has also been called a roarer (VI. 10. 10). He has been mentioned as remaining in a lying posture (I. 100. 7; II. 12. 11; V. 30. 6; V. 32. 2) and as sleeping in a recumbent posture (IV. 19. 3). *Ahi* has also been described as discontented, spread out, unintelligible, not possessed of life, lying in recumbent position, unjointed, and of creeping habit (IV. 19. 3). He is said to have caused the appearance of lightening, the roaring of the cloud or the pouring down of rain, and to have thrown a bolt against Indra (I. 32. 13). *Ahi* lives in a cave, remains concealed, incapable of

being seen and is a terror of the sky and heaven (II. 11. 5). Lastly, we get the mention of his hands (I. 103. 2). I shall now deal with the conflict between *Ahi* and Indra. First, we are informed that Indra killed or pierced *Ahi* (I. 103. 2; II. 19. 2; III. 32. 11; III. 33. 7; V. 32. 2; VIII. 93. 2) with his thunderbolt (IV. 22. 5) or with an arrow (I. 32. 3—with which he killed the first of the *Ahis* which appeared), being strengthened by Soma-juice (II. 15. 1; V. 29. 3) and with the help of Soma (IV. 28. 1; VI. 72. 3), or Viṣṇu (VI. 20. 2), or the Maruts [who sided with Indra (X. 113. 3)]. We are also told that Indra drove away *Ahi* from the earth (I. 80. 1), waked up the sleeping *Ahi* by his bolt (I. 103. 7), tortured *Ahi* (V. 31. 7), melted away (?) *Ahi* from the sky (VIII. 3. 20), and put *Ahi* to everlasting sleep by killing him (VI. 17. 9). Indra had great brilliancy at the time of killing *Ahi* (X. 96. 4). Secondly, we are told that Indra pierced *Ahi* for water (X. 113. 8), he sent forth waters obstructed by *Ahi* (VII. 21. 3). Again, we find that Indra, having killed *Ahi*, poured down rains (I. 32. 3), released the waters (X. 133. 2) and made them flow (II. 19. 2; V. 29. 2), and even made seven rivers flow (II. 12. 3). Thirdly, Indra brought into view the sky, dawn, and the sun after he had killed *Ahi* (I. 32. 4). The moving gods' wives prayed Indra when he had killed *Ahi* (I. 61. 8).

Let us now consider some other passages connected with *Ahi*. (i) The weapon of Brhaspati is daily directed against *Ahi* (I. 190. 4). (ii) O Indra! whom did you see as the slayer of *Ahi* when you were frightened in heart with the desire of killing (*Ahi*) and crossed ninety-nine flowing rivers like the falcon? (I. 32. 14). (iii) O Indra! you brought out Aṅgus's son from the anthill: thus brought out, he was able to see *Ahi* although he was blind: when he came out, his joints splitting off the pot (coming out by breaking asunder the pot) remained together (IV. 19. 9).

As the physical characteristics of *Ahi* are more or less similar to those of *Vṛtra*, apart from the fact that *Ahi* has been taken to be identical with *Vṛtra* in some passages, I shall discuss the physical features of the both together under *Vṛtra*.

(6) *Ahīsūra*. We get this term in three places: Indra killed *Vṛtra*, *Aurṇvābha*, and *Ahīsūra* (VIII. 32. 16) by delivering water (VIII. 32. 2). Indra's mother said that there are many like *Ahīsūra*, *Aurṇavābha*, etc., who should be saved (VIII. 77. 2).

We may derive the word from *Ahī*, the cow (Nirukta 3. 9. 11), and *śū*, to go, to move, and may signify it as 'one moving like a cow'. Taking into account the passage where we find that *Ahīsūra* should be saved, we may infer that it represents something which was useful to the people: and in view of the above significance of the name (although taken with some doubt), we are inclined to conclude that *ahīsūra*

really represents some cow-like wild beast (as gomrga or some other such animal), which was killed, perhaps in large numbers, during the rains and storms.

(7) *Ilīviśa*. In a single passage (I. 33. 12), we are told that Indra pierced the strength (stronghold) of *Ilīviśa*. Yaska (Nirukta 6. 2, 14) takes it to be a synonym of the cloud. We may consider its significance in another way. We may (although doubtfully) derive the word from *ilī*, a stout stick of wood, and *viś*, to pervade, to enter into : and make it mean a collection of trees (a small forest) from which stout sticks (weapons) were prepared. In such a case it is quite reasonable to think of the uprooting of trees by storm, as one of the feats of Indra.

(8) *Ibha*, *Tugra*, *Tātūji*, *Daśamāya*, *Daśoni*, *Vetasu*, and *Smadita*. These names of very obscure import occur in some three passages. We are informed that Indra killed *Tugra* and *Vetasu* (VI. 24. 4), that he placed *Ibha*, *Tugra*, *Tātūji*, *Daśamāya*, *Daśoni*, and *Vetasu* under the control of Dyotana (VI. 20. 8) and that he placed *Tugra* and *Smadita* under the power of Kutsa (V. 49. 4). We are further told (in many passages) that *Tugra*'s son *Bhujyu* was rescued by the Asvins : I shall discuss this event in another place.

Without any other evidence, we shall have to depend upon the doubtful significance of the names of the demons. *Ibha* means 'elephant' or 'one from whom fear is gone' (*gatabhīta*) (Nirukta 6. 12. 1). Knowing that *Tugrya* (Nirukta 2. 24. 2) or *Tugriya* (Pāṇini) means water or *Tugra*'s descendant, we may take *tugra* to mean snow, ice or cloud. *Tātūji* means 'hastener' or 'promoter' (Nirukta 3. 9. 15 : 6. 20. 1). *Daśamāya* literally means 'one having ten tricks'. *Daśoni* literally means 'one having less than ten'. *Vetasu* can be derived from *Veta*, reed or cane, and *sa*, to move, and thus may be made to mean 'one moving the reeds'. *Smadita* means 'one attended by followers'. Again the term *dyotana* has been used in one place (VIII. 29. 2) to qualify Agni and means 'glistening' : hence we may apply the same meaning here and signify it as 'a glistening one' (the sun ?). We may now speculate (since we cannot be the least definite in this matter) regarding their physical basis. We may take *ibha* to represent water flowing through the plains, *tugra* the snow on the top and the sides of the mountains melting into water, and *tātūji* the waters (waterfalls) rapidly flowing down the mountains. *Daśamāya* and *daśoni* might have been meant to represent large stretches of water dividing into many or fewer arms or branches as they flow down the mountains. *Vetasu* was perhaps meant for floods in low marshy places abounding in reeds, etc. Lastly, *smadita* might well have represented glaciers flowing down the mountains, the big floating pieces of ice, boulders, and uprooted trees being its followers.

(9) *Uraṇa*. This term occurs once (II. 4. 4). We are told that Indra killed ninety-nine *uraṇas* showing their arms. Macdonell (*Vedic Mythology*, p. 152) refers to it as a demon named 'ram'. Yāska gives the meaning as 'sheep' (Nirukta 5. 21. 3). We are thus inclined to represent *uraṇa* as the sheep which are killed in large numbers during rain and thunderstorm. We may also take an alternative figurative meaning by representing *uraṇa* as pine or fir trees with spreading branches (arms) and with needle-shaped leaves representing the hairs of *uraṇa* which are uprooted during the rain and storm.

(10) *Aurnavābha*. The word is found in three places. We are told that Indra killed *Aurnavābha* (II. 11. 18; VIII. 32. 26). We also see that Indra's mother said that there were many like *Ahīsūva*, *Aurnavābha* who should be saved (VIII. 77. 2). *Aurnavābha* has been translated as the 'spider brood' by Macdonell (*Vedic Mythology*, p. 152). If we take into account the passage in which it is noted that *Aurnavābha* should be saved, we should take it to represent something useful to the people. It may thus mean some woolly beast (as Yak or some other animal like it). It is thus easy to conclude that useful beasts like the present one were killed through the agency of rains and storms.

(11) *Kuyava*. The term occurs about seven times. We are told that Indra killed *Kuyava* (I. 103. 8), that Indra brought *Śuṣṇa* and *Kuyava* under control (VII. 19. 6) for the sage Kutsa (II. 19. 6), and that Indra killed *Kuyava* at the beginning of the day (IV. 16. 12) and broke the wheel of the sun's chariot (IV. 16. 12) or stole the same (VI. 31. 3). We find two passages in which there is mention of *Kuyava*'s two wives. The passages are more or less obscure and we may translate them as follows : (1) The dweller of the atmosphere (that is, *Kuyava*) himself diffuses all round : he himself dips down and disperses the foam. The two wives of *Kuyava* become bathed in the foam : may they be killed in the current of the stream (I. 104. 3). (2) The place of origin of *Ayu* placed above is concealed : the powerful (demon) grows from above (the waters) and appears. The straight-flowing (*anjasi*), one flowing in a curved manner (*kulīṣi*), and the wife of the mighty (*vīrapatnī*) having satisfied him with their waters feed him with them (waters) (I. 104. 4).

The oriental authors (Macdonell, *Vedic Mythology*, p. 161) take *kuyava* as qualifying *śuṣṇa*, but I take him to be a distinct and separate demon. Whereas in two passages (II. 19. 6; VII. 19. 2) we may take either significance, in the other three (I. 103. 8; IV. 16. 12; VI. 31. 3) the construction is such that one is inclined to take the latter view. Further, we have mention of *Kuyava*'s wives without the mention of *Śuṣṇa* (I. 104. 3). If we accept the meaning of *Kuyava* as 'causing bad corn or harvest' (as held by Macdonell, p. 161) referring to barley, we find that this demon was destructive to barley, the only or

principal food crop in Rigvedic period. Nowadays barley is and can only be cultivated in the Punjab at higher altitudes and in the winter. It can only be grown in a comparatively dry place with a dry atmosphere: and the Punjab has the lowest rainfall of the Northern India and has very little winter monsoon. We may take it for granted that the physical features of the province has not changed from the Vedic times so greatly as to affect the crop. Taking these facts into consideration, the characteristics of *Kuyava* (I. 104. 3) and the fact that Indra killed *Kuyava* at the beginning of the day, we are led to the idea that *Kuyava* is the personification of 'fog' appearing in the extremely cold winter night and continuing to the morning. As the temperature of the atmosphere becomes 0°C. the fog drops freeze on the surface of vegetation as granular hoar-frost. The vegetation suffers great damage from the freezing of the juice (cell sap). Thus hoar-frost is greatly injurious to the young flowering shoots of the crop (see *Encyclopædia Britannica*, 14th ed., Vol. 9, article 'frost'). Further, if we take the breaking or stealing away of the wheel of the sun's chariot as a figurative representation of the late sunrise in the winter (as well as the obstruction to the sun's rays to reach us by the fog), we have further evidence for our conclusion. That *Kuyava* is different from *Susna* is realized when we see that Indra poured down water and filled the wells after killing *Susna* and that nothing of this sort is said of *Kuyava*.

We doubtfully consider the two wives as representing the hoar-frost and small pieces of ice floating on the surface of the streams. The two passages (I. 104. 3, 4) probably refer to the idea of the formation of fog from the evaporation of water from the surface of the rivers.

The reference to the sage Kutsa for whom Indra controlled *Kuyava* probably indicates an unusual occasion in the lifetime of Kutsa when there was a conspicuous absence of frosty weather.

(12) *Kuyavāca*. A single passage (I. 174. 9), indicating that Indra killed *Kuyavāca* for the king Duryoni, occurs in a hymn composed by a sage other than those who composed the passages on *kuyava*. It is probably identical with *Kuyava*.

(13) *Kṛṣṇa*. The terms *kṛṣṇa* and *kṛṣṇā* occur many times in the Rigveda. Except in some seven pks, they have been used to mean darkness (I. 92. 5; I. 115. 5; IX. 66. 24; X. 89. 2; etc.), dark night (I. 113. 2; III. 55. 11; VI. 9. 1; X. 3. 2; etc.), charring due to burn (IV. 7. 9; VI. 60. 10; VII. 3. 2; X. 20. 9; etc.), the smoky flame (X. 21. 3), the dark cloud (I. 79. 2; I. 164. 47; IV. 17. 14), the black cow (I. 62. 9; IV. 3. 9; etc.), the black-spotted antelope (X. 94. 5) and the dark-complexioned sage Kaṇva (X. 31. 11). Varuṇa's rays are some dark (black) and some white (VIII. 41. 10). Lastly, in another verse (IX. 41. 1) we are told that Soma, becoming brilliant, movable, and

swift like water removes the darkness. This no doubt refers to moonlight destroying the darkness of the night.

The seven hymns referred to above describe the conflict between *Kṛṣṇa* and Indra. We are told that Indra, with his brilliant energy (III. 31. 21) and with the help of Rjīśvan (I. 101. 1), killed (I. 101. 1) or destroyed (III. 31. 21) *Kṛṣṇas*, 50,000 in number (IV. 16. 13) or those with dark womb (I. 101. 1). Indra destroyed the dwelling place of the *Kṛṣṇas* (IV. 16. 13). He kills *Kṛṣṇa* by taking off the dark covering (skin) and reduces him to ashes (I. 130. 8). Lastly, in three passages, we are told (i) that *Kṛṣṇa* with his 10,000 (men) was waiting on the bank of Amṣumati river: Indra by his diligence (śaci) found out the roarer and killed them all for the benefit of men (VIII. 96. 13), (ii) that Indra, finding the fast-moving *Kṛṣṇa* travelling in a wide area at some concealed place of Amṣumati river asked the Maruts to kill him (VIII. 96. 14), and (iii) that Indra, finding the fast-moving *Kṛṣṇa* holding his body prominently near the river Amṣumati killed him and his lightless, coming soldiers with the help of Brhaspati.

We are inclined to believe that the demon *Kṛṣṇa* is a representative of the 'dark cloud' for the following reasons: (i) The term has been applied to darkness in other places. (ii) Its characteristics as a roarer, fast-mover, and one destitute of light. (iii) The presence of a dark womb. (iv) The intervention of the Maruts, indicating high winds or storms accompanying (or causing) their dispersal.

Two peculiarities to be noticed in some of the passages on the conflict between Indra and *Kṛṣṇa* are that no rainfall is mentioned in this connection and that the Maruts intervened in the conflict. We know, (*Enc. Brit.*, 11th ed., Vol. 6, article 'cloud,' p. 558; *Ibid.*, 14th ed., Vol. 5, article 'cloud,' p. 852) that there is a form of cloud, named *Strato-cumulus*, which consists of large globular masses or rolls of dark or dull grey colour frequently covering the whole sky: it does not bring rain. Further, owing to the numerous rolls, the authors of the verses probably referred to them in the plural number. The Amṣumati river may be an earthly river or more probably the bright Milky Way.

(14) *Cumuri and Dhuni*. The two demons have been mentioned, always together, in six passages. They have also been mentioned with *Pipru*, *Susna*, and *Śambara* in one ṛk (VI. 18. 8). The word *dhuni* has elsewhere been used for the river (II. 15. 5; II. 30. 2; V. 87. 3) and as qualifying Indra causing trembling (V. 34. 8) of the enemies (I. 174. 1; X. 89. 5), the Maruts as roarers (I. 64. 5; VII. 56. 8; X. 95. 3) or trembling (VI. 5. 5; VI. 66. 10; X. 78. 3) or causing trembling (I. 87. 3; V. 60. 7; VIII. 20. 14), the earth as trembling (I. 87. 3) and the cloud as trembling like the skin of the horse (X. 149. 1). In

one place (II. 15. 5) we are told that Indra lessened the amount of water of this (some particular) large river for crossing it : he made those cross the river safely who were unable to do so. This passage evidently refers to the drought of the summer before the onset of rain. Considering the demons, we find that Indra killed them both (VI. 18. 8 ; VI. 26. 6 ; VII. 19. 4 ; X. 113. 2) for the king Dabhīti (VI. 26. 6 ; etc.) : he sent them to sleep in favour of Dabhīti (II. 15. 9 ; VI. 20. 13). Lastly, we are told that he killed *Cumuri*, *Dhuni*, *Pipra*, *Sambara*, and *Suspa* (VI. 18. 8).

Cumuri may be derived from *cu*, to make noise, to sound, and *mur*, to encompass, to surround, and may be made to signify 'one which produces sound and surrounds all sides'. *Dhuni* is derived from *dhun*, to roar and may mean 'a roarer'. Taking the above meanings we consider them to represent 'clouds which give rise to sounds'. *Cumuri* may be made to represent that form of cloud which spreads all round and produces a wild sound. *Dhuni* may be made to represent the typical form of 'thundercloud' or *cumulonimbus*, characterized by thunders, lightening and storms, generally followed by local showers of rain (*Enc. Brit.*, 11th ed., Vol. 6, p. 559 ; 14th ed., Vol. 5, p. 852).

(15) *Dāsa*. The term occurs in a large number of passages. That the word was primarily used for the original inhabitants of the country, who were different from the Aryans, appears from the passages in which they are mentioned in contrast with the Aryans (VI. 22. 10 ; VIII. 51. 9 ; X. 38. 3 ; etc.) and from such passages as 'Aryans are equal in match with the Dāsas' (X. 108. 3). We also see that the Aryans used to accept gifts or presents from the Dāsas (VIII. 46. 32), and that the Aryans used to pray for getting a hundred Dāsas (VIII. 56. 3). These Dāsas were employed as servants (VII. 46. 7). Again, owing, no doubt, to constant warfare between the Dāsas and Aryans, the Dāsas were really the enemies of the latter : and we find all sorts of prayers by the Aryan sages against the Dāsas addressed to the deities and particularly to Indra (II. 20. 6 ; IV. 18. 9 ; VIII. 24. 27 ; etc.). Along with these prayers we find mention of many characteristics of the Dāsas. We are informed of their strength (VIII. 40. 6), their anger (I. 101. 2), their mischievousness (II. 20. 6), particularly to the *sādhus* (VI. 60. 6), their soldiers (IV. 18. 9), and of their nature—they do not perform yajña and do not follow the usual rites ; their (religious) performances are quite peculiar and they cannot be considered as human beings (X. 22. 8). Further, we have mention of Dāsas, as Navavāstva and Brhadratha (X. 49. 6), Dāsa-kings, as Yadu and Turvā (X. 62. 10) and Dāsa's wives (I. 32. 11 ; III. 12. 6 ; V. 30. 5 ; VIII. 96. 18). Lastly, considering the loss and injury from the various natural phenomena, the vedic sages figuratively took them as demons

and qualified them as *Dāsas*. Thus Ahi (II. 11. 2), Kuyava (VII. 19. 2), Namuci (V. 30. 7, 8; VI. 20. 6; X. 73. 7), Pipru (VIII. 32. 2), Vareci (IV. 30. 15; VI. 47. 21), *Vṛsaśipra* (VII. 91. 4), *Viśvarūpa* (X. 99. 6), Śambara (IV. 30. 14; VI. 26. 5; VI. 47. 21), and *Śuṣṇa* (VII. 19. 2) have all been designated as *Dāsas*.

(16) *Drbhika*. The term occurs once (II. 14. 3) where we are told that Indra killed *Drbhika*. We can derive the term from *drbh*, to be afraid of, and thus make it mean 'something of which one is afraid'. We are unable to say whether it may or may not mean long continued drought which was destructive to the crop and was thus the cause of great anxiety on the part of the Vedic sages.

(17) *Namuci*. The name is found nine times in the *Rigveda*. He has been called *āsura* (demoniacal) (X. 131. 4) and *Dāsa* on several occasions (V. 30. 3; etc.). We are told that Indra killed the trickful *Namuci* (I. 53. 7; II. 14. 5) and that he killed *Namuci* and *Vṛtra* (VII. 19. 5). Indra beheaded *Namuci* with water foam (VIII. 14. 13). He twisted *Namuci*'s head (V. 30. 7) and twirled off his head turning it like a piece of stone (V. 30. 8). *Namuci*'s wives were like weapons (that is, were his soldiers); knowing that they would be able to do nothing against him, Indra kept under lock his (*Namuci*'s) two favourites inside his (*Namuci*'s) house and then went to fight with *Namuci* (V. 30. 9). We are also told that *Asvins* came to help Indra in his conflict with *Namuci* (X. 131. 4) and when Indra crushed the head of the mischievous *Namuci*, protected *Namī sāpya* (*sāpya*—the idle, sleeping) and provided him with an enormous amount of money and food, the falcon carried the intoxicating *Soma* to Indra (VI. 20. 6). Lastly, we find a long story of this conflict in *Śatapatha Brāhmaṇa* (15. 7. 3. 1-3), *Taittiriya Brāhmaṇa* (1. 7. 1. 6-7), and *Tāṇḍya Brāhmaṇa* (12. 6. 8). The purport of the story is this: *Namuci* got the boon that he will not be killed at night or day, not by a rod (*lāṭhi*), blow, slap or fist, and not by drought or moisture. When Indra took a vow to kill him, *Asvins* and *Sarasvatī* shed water foam like a thunderbolt *Vajra* and produced neither drought nor moisture and Indra was able to kill *Namuci* in the early morning before sunrise, neither at day nor at the darkness of night.

The word *namuci*, is derived from *na-muci*, meaning 'not letting go' (*Pāṇini* VI. 3. 9), that is, not giving rise to rains. This idea is further strengthened if we take *aśman* (V. 30. 8) to mean cloud (as held by *Sāyana*) instead of a piece of stone which (latter), however, seems to be more appropriate. Again, instead of taking *Namī sāpya* as a person, we may consider it to be a fertile field (?) [*Namī* from *nam*, to cause to sink or soak (water) and *sāpya*, relating to fertilization]. Thirdly, we find that *Namuci* can only be killed by foams of water and only in the morning between night and sunrise. Taking these

facts into consideration, we take Namuci to be a representation of 'the morning fog of winter in the valleys abutting on fast-flowing rivers'. We are particularly reminded of the condition towards the end of the winter when the period of bitter cold has passed and ice and snow have begun to melt. This condition is perhaps referred to when we are told that *Namuci* was killed by the foams of water. The melting of ice results in the swelling of the rivers with the formation of strong currents and formation of much foam, as they flow down the valleys. The whole night (sometimes the whole day as well) remains shrouded in such fog, to be cleared up only in the morning before sunrise. Such fog, owing to a comparatively warmer atmosphere, instead of giving rise to frosts or frozen water, simply settles as moisture on the ground and improves the fertility of the soil. This condition, in my opinion, is referred to when we are told that Indra protected the idle *Namī sāpya* whom he provided with an enormous amount of money and food. We understand that the valleys, formerly lying barren without vegetation, now becomes fertile with moisture and produce plenty of crops.

The association of the Asvins, whom I have already shown to be identical with the two twin stars of *Asvinī* (α and β Arietes) (*Indian Historical Quarterly*, Vol. VI, 1, 1930, p. 172), with Indra in the conflict with Namuci indicates that they used to rise above the horizon in the early morning at that time. This approximately corresponds to the time when the vernal equinox was passing through the end of the *bharanī* (35 Arietes), i.e. about 1350 B.C.

The falcon seems to be the constellation *Aquila*, which also used to appear high up in the sky, the moon remaining near the constellation. We know that *Śraavanā* (Altair), the junction star of the asterism is placed in the neck of the constellation figure of *Aquila*.

(18) *Pipru*. This demon, designated both as an *Asura* and *Dāsa*, has been mentioned some eleven times. We are told that Indra killed *Pipru* (I. 101. 2 ; I. 103. 8 ; II. 14. 5 ; etc.) or destroyed his strength (X. 138. 3) or brought him under control (V. 29. 11) for Rjīśvān (IV. 16. 13 ; X. 138. 3). We also find that Indra destroyed or broke down the dwelling place of *Pipru* (I. 51. 5 ; VI. 20. 7) and thereby protected Rjīśvān (I. 51. 1) and gave money (wealth) to him (VI. 20. 7). He also broke the cow-shed of *Pipru* (X. 99. 11) with his bolt. Lastly, we see that Indra killed *Anarśani*, *Ahiśuva*, *Pipru*, and *Sṛbinda* by pouring down water (VIII. 32. 2).

The word *pipru* has been derived from *pr* or *par* (by reduplication) meaning 'resister, antagonist' (see Macdonell's *Vedic Mythology*, p. 161). Finding that Indra kills him for water, we may take *Pipru* to represent some form of cloud. Taking into account the significance of the name, I am inclined to take it to mean some persistent form of cloud which, after

causing much distress by oppressive heat, ultimately ends in rain. It may be some form of *nimbus* (*Enc. Brit.*, 11th ed., Vol. 6, p. 559).

(19) *Mrgaya*. This is mentioned in three places, once with *Pipru* (IV. 16. 13) and once with *Arbuda* and *Vṛtra* (VIII. 3, 9). He has been called 'swollen' or 'provided' with growth (IV. 16. 13). We are told in one place (IV. 16. 13) that Indra killed him for Rjīsvān and in another place (X. 49. 5) that he was placed under the control of Sṛutarvāra. Lastly (VIII. 3. 19), we are told that he killed the trickful *Mrgaya* and others with his big bow and drove the cows out of the mountains.

Mrgaya has been taken by oriental scholars to qualify *Pipru* (*Vedic Mythology*, p. 161); but we are unable to do so in consideration of the three passages in which the name occurs. The word literally means a beast chased in sport. Taken figuratively, we are inclined to conclude that it represents a fast-moving fog which passes over the mountains, being chased by high winds and which spreads out to surrounding places. The 'cows' seems to indicate small masses of clouds (or fogs) on the sides or tops of the mountains. The bow is the rainbow.

(20) *Rudhikrā*. In one passage (II. 14. 5) we are told that Indra killed *Namuci*, *Pipru*, and *Rudhikrā*. We can derive the word from *rudhi*, bank (of a stream) or slope (of a mountain) from *rudh*, to obstruct, to withhold, and *krā*, from *kram*, to cover, to extend over; and we may thus infer something which covers the banks of rivers or the slopes of mountains. In such a case, considering that it is mentioned with *Namuci*, we may doubtfully take it to represent some form of mist or fog hanging over the bank of a river or the slope of a mountain.

(21) *Rauhina*. This is mentioned once (II. 12. 12), where we are told that Indra destroyed with his bolt the *Rauhina*, rising up to the heaven. See Kalakanjas (p. 65).

(22) *Varāha*. The term occurs several times in the R̥gveda. It has been used to mean a boar (VIII. 77. 10), and figuratively to qualify Rudra (I. 114. 5) referring no doubt to its ferocity and ugly appearance, and Viśvarūpa (X. 99. 6). We are again told (I. 61. 7) that Indra cleaved *varāha*. It has also been used to qualify Vṛtra (I. 121. 11). We are thus inclined to take it to represent 'cloud'.

(23) *Varci*. This is mentioned four times, always with Śambara, both of them being addressed as *Dāsas* (VI. 47. 21). *Varci* has also been called *Asura* (VII. 99. 5). We are told (VI. 47. 21) that *Varci* and *Śambara* were killed by Indra in a place, so high as to be inaccessible (by climbing). Indra also killed a hundred thousand sons (II. 14. 6) or warriors (VII. 99. 5) or five hundred thousand attendants of *Varci* (IV. 30. 15).

The word *varci* is derived from *vare*, to shine, to be bright. Hence we can take it to be some bright object. Reference to

a place inaccessible by climbing (*ud̥raja*) leads us to the idea of the top of such mountains as are inaccessible. Further, the significance of the name as 'bright one' makes us think of 'sheets of ice' on the mountain tops appearing bright through reflection of the sun's rays.

(24) *Vala*. The term occurs about thirty times and has been used to mean 'strength, vigour, power' (some fifteen times) and to represent the demon killed by Indra. We are told that Indra killed *Vala* (I. 52. 5; III. 34. 10) and rescued the cows detained by *Vala* (II. 12. 3; II. 14. 3; X. 67. 6). Indra cleft the cave of *Vala* containing cows. *Vala* has been qualified as a mountain or mountain-like (*adri*) and a giver of benefit (*phaliga*): he was afraid of Indra's roaring (I. 62. 4). If the word 'phaliga' is meant for *Vala* (as we have taken here), then we are told (VIII. 32. 25) that Indra cleft the benefit-giver (*phaliga*) for water and made the rivers flow downwards. In another place (VI. 39. 2) we are told that Indra, desiring cows, broke the summit of *Vala* on the top of the mountains and subdued the Panis by his roars. Again we find (II. 11. 20) that Indra, accompanied by the Angiras turned round the cakra, as the sun does, and killed *Vala*. We are also informed of the slaying of Arbuda in the same verse. In another place (III. 45. 2) Indra again has been called a cleaver of *Vala*. We also find Br̥haspati credited with the same feats: he killed *Vala*, the giver of benefit, with the aid of the good praising ones (IV. 50. 5): he caught hold of the cows of *Vala*: the sun and moon rose (in the heaven) due to this feat of Br̥haspati (X. 68. 10).

Adri and *Vala* are synonymous with cloud according to Yāska (*Nirukta* 5. 21. 2). We find that Indra killed *Vala* on the top of the mountain and delivered the cows. We are inclined to take *Vala* to represent that type of cloud which instead of pouring down rain directly, gives rise to hailstorms, the hail subsequently melting into water. Such a type of cloud (*Enc. Brit.*, 14th ed., Vol. 5, p. 852), known as *cumulo-nimbus*, assumes the form of mountains or towers or anvils, 'from the base of which local showers of rain or of snow, occasionally of hail or soft hail, usually fall'. We can easily explain the significance of *sānu* (top, summit of a mountain) and *adri*, if we accept this view. The term *phaliga* is appropriately used for *Vala*, as the water ultimately formed is of great importance for the production of crops. The cows may be appropriately taken for the hail which gives rise to water by melting.

(25) *Vṛtra*. The word occurs many times. First, he has been called *Dānu* (II. 11. 18) and his mother is also mentioned (I. 32. 9). Five times (I. 32. 5, 8, 11; I. 51. 4; I. 80. 10) he has been designated (or qualified) as *ahi*, a serpent. He has also been mentioned as Indra's enemy. In Śatapatha Br̥hmaṇa (I. 6. 4. 18) *Vṛtra* was identified with the moon. Secondly,

we know something of his bodily features. Thus he is said to be without hands and legs (I. 32. 7) and again with these same members of the body (III. 30. 8). He has a head (I. 52. 10), mouth (I. 52. 15), a pair of jaws (I. 52. 6 ; I. 80. 5 ; X. 152. 3), joints of the body (I. 11, 12) and sixteen coils of the body (Taittiriya Saṃhitā, II. 1. 4). Thirdly, we are informed of other characteristics. He is capable of growing (III. 30. 8), is lustreless or dull (III. 32. 6), remains in a lying posture (III. 30. 20 ; IV. 19. 3) in the sky (I. 52. 6), extends all round the sky without limit (I. 52. 6), extends both to the heaven and earth (I. 80. 4), binds the earth and heaven together (I. 52. 10), is surrounded by darkness (X. 113. 6), is not stationary, that is, is always moving (I. 32. 10) and is restless (I. 32. 10). He has a weapon (I. 80. 10). He is again the obstructor of water (I. 52. 6 ; X. 113. 6), coverer of water (II. 14. 2 ; III. 32. 6 ; V. 30. 6), absorber of water (I. 31. 19) and obstructor of rivers (I. 52. 2). We are also informed of his trembling (I. 80. 12 ; VIII. 6. 6) and roaring (I. 30. 12 ; III. 30. 8). Fourthly, we come to consider the conflict between *Vṛtra* and several deities. We are told that Indra killed *Vṛtra* (I. 103. 8 ; III. 32. 6 ; IV. 28. 1 ; V. 29. 3 ; etc.) by cutting off his arm ; and *vṛtra* fell down on the earth like the trunk of a tree cut off with an axe ((kuṭhāra) (I. 32. 5) ; he struck at the mouth of *Vṛtra* (I. 52. 15) ; he struck at his shoulder (I. 32. 7), and *Vṛtra*, who held the water during his lifetime, now lay at its feet (I. 32. 8) ; he cut *Vṛtra* into pieces at the joints (VIII. 6. 13) ; he struck at the two jaws of *Vṛtra* (I. 52. 6 ; I. 80. 5), cut off his head (I. 52. 10), cleft his vital parts (I. 61. 6 ; VIII. 100. 7) and divided the joints by his bolt (I. 61. 12). Indra killed *Vṛtra* with the help of the Maruts (III. 47. 3 ; VIII. 2, 36 ; VIII. 76. 2) ; he came to know the vital parts of *Vṛtra* by being sent by the Maruts (III. 32. 4). Again we are told (VIII. 7. 23) that the powerful, kingless and rain-giving Maruts killed *Vṛtra*, huge like a mountain, by cutting it into pieces at the joints. Again we are informed that Indra delivered water after killing *Vṛtra* (I. 85. 9 ; V. 29. 2 ; etc.). We further see that Indra has been praised for having removed the cover of the waters, for having got hold of the wealth of the *Dānvas* on the mountain and for having made the sun ascend the sky and thus made him visible to us after killing *Vṛtra* (I. 51. 4). We are further told (I. 80. 13) that, when Indra struck *Vṛtra* and his weapon with his bolt and he was determined to kill him, his strength spread all round in the sky and he displayed his supremacy. The *Dāsa*'s wives, protected by *Ahi*, were confined ; the gate for (allowing) the flow of water remained closed. Indra opened the gate after having killed *Vṛtra* (I. 32. 11). Again, we find that Trita, strengthened by food, killed *Vṛtra* by cutting into his joints (I. 187. 1). We also see that Soma killed *Vṛtra* (IX. 61. 20). Lastly, we are told (I. 32. 9) that *Vṛtra*'s mother remained looking downwards

and Indra struck at her lower portion ; then the mother remained above and the son, *Dānu*, below, like a cow with her calf.

We have reference to *Vṛtra* in later Vedic literature. In *Taittirīya Saṃhitā* (1. 2. 1) Soma has been called the pupil of *Vṛtra*'s eye : we are also told that Indra killed *Vṛtra* with the help of Soma and Agni (1. 6. 11). In *Śatapatha Brāhmaṇa* (3. 1. 3. 12) we are told that, when Indra killed *Vṛtra*, his eyes made the mountain three-peaked. We find the same legend in the *Atharvaveda* (IV. 10. 1).

In *Nirukta*, both *Ahi* and *Vṛtra* are mentioned as synonyms of the cloud (2. 21. 2). *Ahi* is again a synonym of water (2. 42. 2) and *Vṛtra* of wealth (3. 9. 9).

Ahi and *Vṛtra* have been taken as synonymous in five passages already referred to above and in *Nirukta*. But, in spite of the common traits assigned to them in a few other places, we find many differences in their physical features in passages devoted to them individually. Thus, both of them are roarers, obstructive to water, and remain in a lying posture ; Indra killed both of them and made the waters run. Again, *Ahi* lives in a cave, remains concealed, is incapable of being seen and is a terror of the sky and heaven ; whereas, *Vṛtra* extends all round the sky, both to the heaven and earth without limit, is never stationary and is restless. *Ahi* causes the appearance of lightning and roaring of the cloud, but nothing is said of *Vṛtra*. Indra drove *Ahi* from the earth, but nothing of this kind is known of *Vṛtra*. Further, there is a difference of opinion regarding the physical characteristics of *Vṛtra* itself ; at one place he is called limbless, but at another place he is said to be possessed of limbs which are cut off by Indra. Taking all these facts into serious consideration I am inclined to the idea that *Ahi* and *Vṛtra* were originally different demons—representatives of different physical phenomena, but later were used to represent the same, perhaps owing to confusion of the ideas of the later Vedic sages regarding their physical features. We are still capable of indicating their differences. Thus, *Ahi* was the serpent of the sky ; he was a terror of the sky and heaven, and he was killed by *Trita*. Considering these and many other features that we have already discussed under *Ahi*, I conclude that it originally represented the constellation figure of *Hydra*. All the attributes of *Ahi* can be well explained if we take this constellation to rise above the horizon at the time of summer solstice, the period of rains. Plunket (*Ancient Calendars and Constellations*, pp. 117-9) has already shown that *Vṛtra* represents the constellation, *Hydra*, and that the summer solstice was above its middle and that the equator was passing through the coiled body of the snake-like constellation at about 4000 B.C. I take *Ahi* to represent this constellation. Considering the principal physical features of *Vṛtra* (sometimes repeated several times), I agree with the idea of the

oriental scholars and take it represent the cloud. We can, more specifically, take it to represent that form of cloud which is known as *Nimbus* or raincloud (*Enc. Brit.*, 14th ed., Vol. 5, p. 852). 'If there are any openings in the cloud an upper layer of *cino-stratus* or *alto-stratus* may almost invariably be seen through them.' We may take these latter to represent *Vṛtra's* mother (I. 32. 9).

We may now interpret, so far as it is possible, some of the passages in connection with *Vṛtra*. *Agru's* son, in the anthill (see under *Ahi*) seems to be the larva of the white ant coming out of the egg, with a segmented body. The term *agru* means single and we cannot definitely say whether the Vedic sages knew that the eggs are laid parthenogenetically by female white ants. The moon has been called the pupil of *Vṛtra's* eye. This probably refers to the rent formed in the cloud through which the moon could be seen. The making of a three-peaked mountain by the eye of the *Vṛtra* probably also refers to a large ragged gap on the mountain top so as to make it appear as three-peaked.

(26) *Vṛsaśīpra*. In one place (VII. 99. 4) we are told that Indra and Viṣṇu destroyed the trick (*māyā*) of *Vṛsaśīpra*. The term can be derived from *Vṛsa*, bull, and *śīpra*, snout (*Nirukta* 6. 17. 2), thus signifying one with a snout like that of a bull. If we take into account the black colour of the snout, we may extend the meaning to 'one black like the snout of a bull'. In such a case we may think that *Vṛsaśīpra* represents a 'dark cloud'.

(27) *Śambara*. The name occurs some twenty-two times. He has been called *dāsa* (IV. 30. 14; VI. 26. 5; VI. 47. 21) and the son of *Kulitara* (IV. 30. 14). We are told that Indra killed *Śambara* (I. 51. 6; I. 54. 4; I. 101. 2; VI. 18. 8) for the benefit of *Divodāsa* (I. 130. 7; V. 19. 6; VI. 21. 5; VI. 43. 1). Indra destroyed the dwelling-places of *Śambara* (I. 103. 8) which were ninety-nine in number (II. 19. 6; IV. 26. 3; VI. 47. 2) or 100 in number (II. 14. 6); he did so with the help of Viṣṇu (VII. 99. 5). The dwelling places of *Śambara* were difficult to destroy (VI. 31. 4). There are some peculiarities in the conflict between Indra and *Śambara*. Indra killed *Śambara* in high mountains (VI. 26. 5; VII. 18. 20) with the face directed downwards (IV. 30. 14) and in high altitudes (*udvraja* region—so high as to be inaccessible by climbing) (VI. 47. 21) and threw him down from the mountain (I. 130. 7). In one place (II. 12. 11) we are told that Indra searched for *Śambara*, who was hiding in mountain, for forty years and at last got hold of him. We also find that *Brhaspati* killed *Śambara*, made the fixed (motionless) water flow and entered the mountain full of harvest (II. 24. 2). We also find that *Vaiśvānara* Fire destroyed *Śambara* and made the water flow downwards (I. 59. 6). We are further told that *Śambara* was killed by Indra for the benefit

of Divodāsa (I. 130. 7; II. 19. 6; VI. 21. 5; VI. 43. 1), who was rescued by Indra from being drowned in water (I. 112. 18). Soma also placed Śambara under Divodāsa's control in one day (IX. 61. 2).

According to Naighantu, Śambara means a cloud (1. 10) and power, strength (2. 9).

Comparing the conflicts of Indra with *Varci* and *Śambara*, we find that both of them were killed in a place so high as to be inaccessible by climbing and that a large number of their followers were killed by Indra. Whereas nothing further is said of *Varci*, *Śambara* is said to have been killed on high mountains with his head directed downwards and to have been thrown down from the mountain. As he was killed, fixed (motionless) water was made to flow. Agni is also said to have killed *Śambara* and to have made the waters flow downwards. Thus, having taken *Varci* to represent sheets of ice on the mountain top becoming bright through the reflection of the sun's rays, we are inclined to take *Śambara* to represent large masses of ice on mountains at a lower level. Whereas *Varchi*'s destruction did not lead to any memorable event, *Śambara*'s destruction led to some events described by the sages. Stripped of their allegoric coloration, they consisted principally of the melting of ice on the mountains by the sun's heat of the summer and the flowing of water down the mountains, with sheets of ice floating in it. The dwelling places of *Śambara* were thus the ice-clad top and sides of the mountains. Thus we find that *Varci* represents sheets of ice on the top of the higher mountains above the snow line, slightly melted by the sun's heat and that *Śambara* is the representative of large sheets of ice below the snow line which becomes melted in the summer and produces large currents of water (with ice sheets floating in them) flowing down the sides of the mountains. The finding of *Śambara* after forty years' search probably refers to a particularly cold winter (with the formation of much ice on the mountain) and followed by an intensely hot summer (with melting of ice and production of large currents of water flowing down the mountains) —an event quite unusual and not known to have occurred during the previous forty years. That there was a great flood is also indicated when we are told that the king Divodāsa (during whose reign this event took place) narrowly escaped death from drowning.

(28) *Śusna*. The name occurs some thirty-eight times. First, we find a number of attributes of Śusna. He is defying (I. 54. 5), roarer (I. 54. 5), devouring (that is, devourer of moisture) (II. 14. 5; II. 19. 6), destroyer (VIII. 6. 14), giver of unhappiness (IV. 16. 12), approacher of darkness (V. 32. 4), well-grown (V. 32. 4), preserver of cloud (V. 32. 4) and producer of heat (?) (V. 32. 4). He is trickful (V. 32. 4). He is attended with followers (I. 54. 5) and is a dweller among men

(*nārsada*) (X. 61. 13). His dwelling place is moveable (VIII. 1. 28). He is hot-tempered (V. 32. 4). Secondly, we find Indra killing *Śuṣṇā*. Indra has been invoked to kill *Śuṣṇā* (I. 175. 4 ; X. 22. 7). Indra killed *Śuṣṇā* (III. 31. 8 ; IV. 16. 12 ; etc.) by his bolt (V. 32. 4 ; etc.). He cut the body of *Śuṣṇā* (VI. 26. 3 ; VIII. 40. 10 ; etc.). He hurt *Śuṣṇā* by going round the earth (X. 20. 4). He destroyed his dwelling place (I. 51. 11 ; IV. 30. 13 ; VIII. 1. 18) and his family (X. 22. 11), Indra removed the cap of *Śuṣṇā*'s head (I. 54. 5) and destroyed his strength exhibited on the sky (I. 121. 10). Indra filled the wells with water (VIII. 51. 8) and made the water flow in streams (I. 51. 11) after he had killed *Śuṣṇā*. Lastly, we are told that he killed *Śuṣṇā* for the benefit of Kutsa (II. 19. 6 ; IV. 16. 12 ; VI. 20. 5).

In Nirukta (3, 9. 7) the term *Śuṣṇā* occurs as a synonym of strength. From the attributes of *Śuṣṇā*, there is no doubt that it represents 'drought', as already shown by oriental scholars.

We have another demon, *Anarśani*, which seems also to represent 'drought'. Comparing their attributes, we may consider *Anarśani* as representing a mild form of drought relieved by light showers and *Śuṣṇā* as a severe and long-continued form ending in heavy showers of rain.

Here we have reference of a long-continued severe drought during the time of Kutsa.

(29) *Sribinda*. The term occurs once (VIII. 32. 2) with *Anarśani*, *Pipru*, and *Ahīsura*. Vedic scholars consider it and several others as 'a historical reminiscence of prominent terrestrial foes' (Macdonell's *Vedic Mythology*, p. 162).

We can, however, derive the word from *sri*, to flow, to cause to flow, and *binda*, from *bid*, to split up, thus signifying one which can be split up and made to flow. In such a case we may take it to represent a small rain cloud, clearing away after a local shower.

(30) *Svarbhānu*. The word occurs four times (V. 40. 5-9). He has been called an *āsurā*. He covered the sun with darkness and Indra removed the trick (darkness) of *Svarbhānu*. Ahi put back the sun's eye (disk) on the sky (V. 40. 8). Ahi's sons released the sun from the darkness of *Svarbhānu*. We are also informed in the Brāhmanas (Gopatha, part 2, 3, 19 ; Tāṇḍya 4. 5. 2 ; Śatapatha 5. 3. 2. 2) that *Svarbhānu* covered the sun with darkness.

As is well-known, *Svarbhānu* is the shadow caused by the moon's disk in a solar eclipse. It corresponds to *Rāhu* of Paurāṇik literature. We have many references to solar eclipses in the Vedic and Brāhmanic literature. Perhaps the above hymn refers to a total eclipse.

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Note on a Mauryan Inscription from Mahāsthān (the ancient Paṇḍravardhana).

By D. R. BHANDARKAR.

This fragmentary but most interesting stone inscription in Mauryan Brāhmī was discovered on the 30th of November, 1931, by one Baru Faqīr of the Mahāsthāngarh village in the Bogra District of Bengal, not far from a mound which was being excavated by the Archaeological Department.

The fragment, as it is, contains six lines of writing in Brāhmī alphabet of the Aśokan records. The language is the same as that of his Pillar Edicts, that is to say, it was the language of Madhyadeśa influenced by Māgadhi, or rather the Court language of Magadha. The purport of the inscription is briefly as follows: Some ruler of the Mauryan period, whose name is lost, had issued an order to the Mahāmātra, stationed at Puṇḍranagara, with a view to relieve the distress caused apparently by a famine to a people called Saṃvaṃgīyas who were settled in and about the town. Two measures were adopted to meet this contingency. The first apparently consisted of the advance of a loan in *gaṇḍaka* coins, and the second of the distribution of *dhānya* or paddy from the district granary. A wish is expressed that the Saṃvaṃgīyas will thus be able to tide over the calamity. With the restoration of plenty they were asked to return the coins to the Treasury and the corn to the granary.

It will be seen that this epigraphic record is of great historical importance. In the first place, it establishes the identity of the present Mahāsthān with the ancient Puṇḍranagara. The last line of the inscription clearly shows that it was fixed into the structure of a granary which could not have been far from the place where the stone plaque was found. The granary was thus situated in the present area of Mahāsthān. And as the granary originally belonged to Puṇḍranagara, there can be no doubt as to Mahāsthān being identical with Puṇḍranagara. Cunningham, with his topographical instincts, had long ago identified the two on the evidence of the Chinese pilgrim Yuan Chwang. His identification had, however, remained more or less uncertain for want of epigraphic evidence: but the find of our record now leaves no doubt on this point.

The second point of historical interest that we have to note is the manner in which the State in Ancient India endeavoured to combat the ravages of a famine. Mention is made

in this inscription of the distribution of *dhānya* or unhusked rice. This paddy obviously must have been used as seed for sowing operations, and, also when husked, must have served the purpose of food. It may, however, be asked: why money was at all distributed among the *Samvaṅgiyas*? In this connection we have to remember that in East Bengal where nature is so plentiful, a famine can take place only through the inundation of a river. Mahāsthān, that is, Pundranagara, is situated on a river, namely, the Karatoyā. And when a town is sited on a river, the floods cause devastation not simply to the crops in the fields but also to the buildings and huts which are situated on its bank. To meet this contingency, a money grant has to be made to the people whose belongings have been washed away or seriously affected by the floods. This is perhaps the only explanation that can be given of the disbursement of *gaṇḍaka* coins among the *Samvaṅgiyas*. What again we have to note here is that this disbursement of money and this distribution of unhusked rice were made to this people without any interest. If they had been charged with any, surely there would have been some reference to it in our record.

Perhaps ours is not the first known inscription which relates to the putting up of a granary as a protection against scarcity of food. Of practically the same period is an inscribed copperplate found at Sohagaura, about 14 miles south-east from Gorakhpur. A cursory glance at its contents will convince anybody that it refers not to one but to two granaries, and that this plate is an order to some Mahāmātra, stationed apparently at Srāvastī, to open the two granaries and distribute their contents when any dire contingency called for it. In fact, the idea of counteracting the ravages of a famine by the erection of granaries and store-houses is pretty ancient in India, and it is not therefore a matter of surprise if the Mahāsthān inscription also adverts to the measures commonly employed by the State to combat the devastation caused by a famine in Ancient Bengal.

Let us now see what further light our record throws on the ancient history of Bengal. It is a pity that the first line of the inscription has not been preserved. The name of the ruler, if any was mentioned, is thus lost irretrievably. But as the alphabet and the language of our record are exactly like those of the Asokan edicts, it is not impossible that he was a prince of the Mauryan dynasty. We have already seen that the language of this epigraph is the language of Madhyadeśa influenced by Māgadhi. It was really the language of the Mauryan Court in Magadha, which, owing to its growing imperialism, had spread not only over the whole of Madhyadeśa but also over parts conterminous to it. In fact, it had become the *lingua franca* of almost the whole of North India. We now see

definitely that this *lingua franca* had spread even to Bengal and was in vogue there as early as the Third Century B.C. as our inscription conclusively proves. It is true that Brahmanism took a very long time to spread over Bengal. The Aryan culture seems to have been first disseminated in Ancient Bengal by the Jainas. It is curious to note that while Behar and Kōśala were taken by Buddha and his adherents, Bengal was selected by Mahāvira and his followers for their proselytizing activities. It is true that few traces of this original Jainism are now left in Bengal. But even as late as the middle of the seventh century A.D. the Chinese pilgrim Yuan Chwang testifies to the Nirgrantha Jainas being numerous in Puṇḍravardhana. Only the other day a copperplate charter was discovered during excavations at Paharpur, in Bengal, dated A.E. 159=478 A.D., which registers a grant for the worship of Arhats at a Vihāra situated not far from this place and presided over by the disciples of the Nirgrantha preceptor Guhanandin. No reasonable doubt can thus be entertained as to Jainism, and especially Nirgranthism, having been prevalent in Bengal up till the Seventh Century A.D. This may explain the employment of the Brāhmī alphabet in our inscription, but the use of the Court language of Pāṭaliputra is a clear indication of Bengal—at any rate North Bengal—being included in the Mauryan dominions.

The last point of historical interest that we have now to consider is: who were the Saṃvamgiyas—supposing that was the name really intended. Saṃvamgiyas in the first place remind us of Saṃvajjis. We know that to the account of *Fu-li-chip* (=Vriji) by Yuan Chwang a note is added by the commentator, saying that '*Fu-li-chi* was in North India', and the north people called it the '*Sam-fa-chih* (or Saṃvajji) country'. On this point Beal makes the following pertinent comment: 'The country of the Vrijjis or Saṃvrijjis, i.e. united Vrijjis, was that of the confederated eight tribes of the people called the Vrijjis or Vajjis, one of which, viz. that of the Licchhavis, dwelt at Vaiśālī.' Just as the eight confederate clans, of whom the Vajjis were the most important, were called collectively the Saṃvajjis, or the united Vajjis, it is not at all unreasonable to conjecture that there were similarly confederate clans in East Bengal who were similarly conglomerated under the collective term of Saṃvamgiyas. This shows that the most prominent of these at the beginning were the Vamgiyas, after whom the confederation was styled the Saṃvamgiyas or the united Vamgiyas. The second point to be noted here is that the people of East Bengal are now called Vaṅgas, and it may now be asked where was the necessity of coining from it a name which is an obvious derivative from it, namely, Vamgiya. If we now turn to the Vāyu and the Matsya Purāṇas and study the chapters dealing with *Bhuvana-vinyāsa*, we find that they mention the two allied clans, Pravaṅgas and Vaṅgeyas. But be it noted

that none of them has been called Vaṅga. Furthermore, the second of these names comes so close to the Vaṅgiya of our inscription that our inscription, being earlier than any one of these Purāṇas and being a genuine record of the time, Vaṅgiya must doubtless be considered to be the original name and the reading Vaṅgeya of the Purāṇas thus becomes a corrupt form of it. Again, the fact that Pravaṅgas are coupled with Vaṅgiyas (wrongly called Vaṅgeyas) in these early Purāṇas shows that they were confederated clans and fell under the Saṃvaṅgiyas. And further, the reference to the Saṃvaṅgiyas in connection with Puṇḍranagara goes to indicate that the Puṇḍras also belonged to the Saṃvaṅgiya confederacy. And just as in the time of the Buddha the capital of the Saṃvajjī confederacy was Veśālī, which was the headquarters not of the Vajjis, but of the Lichchhavis who were then prominent, it seems that in the time of our inscription the capital of the Saṃvaṅgiyas was Puṇḍranagara, which was the headquarters, not of the Vaṅgiyas, but of the Puṇḍras after whom it was undoubtedly called Puṇḍranagara.

Note.—The text, with a facsimile of the inscription (which is now deposited in the Indian Museum, Calcutta), will be discussed at greater length in a paper which will shortly appear in the *Epigraphia Indica*.

Three Kushān Coins from North Bengal.

By N. G. MAJUMDAR.

I have received three gold coins for examination from Mr. H. E. Stapleton, Director of Public Instruction, Bengal. One of them comes from Maldah and the remaining two from Mahāsthān in Bogra District. The Maldah coin (No. 2) belongs to the cabinet of Mr. Stapleton, one of the Mahāsthān coins to that of the Rajshahi Museum (No. 1),¹ and the third piece (No. 3) has been recently acquired for the Indian Museum under the Treasure Trove Act. As Kushān coins are extremely rare in Bengal I welcome this opportunity, so kindly provided by Mr. Stapleton, of bringing these coins to the notice of scholars. The late Mr. Rakhal Das Banerji mentions in his *Bāṅglār Itihās*, Vol. I, Second Edition, pp. 38-39, practically all such finds reported before its publication. One of them, a gold coin of Vāsudeva, is said to have been discovered in the Bogra District² in 1909. This I think is identical with the coin (No. 1) in the Rajshahi Museum referred to above. The question has often been asked whether Bengal was included within the Kushān Empire; but unfortunately nothing has been found so far that can definitely settle this problem. It seems rather strange that not a single inscription of the Kushān Kings should come to light east of Benares, and we should have to be satisfied with the evidence of only a handful of coins collected from various parts of the Province.

No. 1 (Plate I), which is a coin of Vāsudeva³ (about 185 to 220 A.D.), bears on the obverse the profile figure of King standing with a trident in left hand and making an offering with right hand on an altar near which another trident is posted. He wears a peaked cap or helmet, a coat of mail and trousers, and a sword hangs down from his waist. The halo which is represented only in part by an arch is a regular feature of the portraits of Kushān Kings later than Kanishka. A symbol which looks like a Nandipada occurs below the king's left arm. The Greek legend along the edge of the coin reads—*Shaonano-Shao Bazoleo Koshano*. The reverse bears the device of a two-armed Śiva standing by the side of his bull. He holds a trident in his left hand and a noose in his out-stretched right hand. He has also the halo as a sign of his godhead. Above his right arm there

¹ *Annual Report of the V.R. Society*, 1927-28 (No. 479).

² Chanda, *Gaudarājāmālā*, p. 4.

³ Cf. Whitehead, *Catalogue of Coins in the Panjab Museum*, Vol. I, Pl. XIX, 209.

is a four-pronged symbol. To the left of the figure occurs in Greek *Oesho* which is taken to be the transliteration of a Sanskrit word denoting Śiva. There is a series of dots along the border of the coin. No. 2 is also a coin of Vāsudeva and of the same type as No. 1, but with this difference that the figure of the king as well as that of Śiva is made somewhat grotesque.

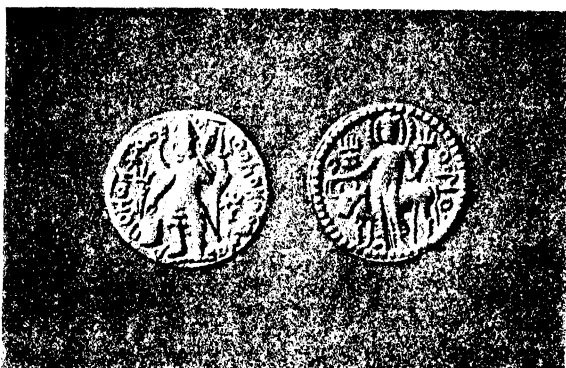
In the series of coins which bear the name of Vāsudeva in Greek on the obverse, two types¹ can be distinguished, of which one is evidently earlier and the other later. The earlier pieces are undoubtedly those on which the figures, royal and divine, are more or less carefully executed and the Greek legends are much less corrupt and still legible. Coming to the later group we find that the legends are written haphazardly, and in many cases quite corrupt and illegible; and the representations of kings and deities have become bizarre and grotesque. We should regard No. 1 of our coins as an example of the earlier type and No. 2 as approaching the later. It may be noted, however, that the debasement of technique on No. 2 has not yet reached that stage illustrated for instance by Gardner's *Catalogue of Coins*, Plate XXIX, Figs. 12-13 which are classed there as 'barbarous imitations'. The later issues of Vāsudeva and their imitations are a sort of link between the Kushān coins on the one hand and the Sassanian coins of the third and fourth centuries A.D. on the other.

Touching the imitations of Kushān coins, which seem to have been current in the period following the reign of Vāsudeva, we should now consider No. 3 of our coins. On a first glance it would appear to be an issue of Kanishka I with a type of whose coins (e.g. Cunningham, *Num. Chron.*, Series III, Vol. XII, Pl. VII, Nos. 9-10) it bears undoubted resemblance. Witness, for instance, the profile standing figure of the king on the obverse; he is bearded, wearing peaked cap, coat, trousers, and cloak, his left hand holding a spear and his right hand placed over an altar in the attitude of making offering. Witness also on the reverse: the profile figure of the goddess Nanaia standing, and in her front, the peculiar symbol which has four prongs with an arched curve below. All these details appear on the examples of the type of Kanishka's coins under reference. It is, however, in the Greek legends that we find the real difference. The legend on the obverse includes a number of letters which can be read, but they are so haphazard that nothing can be made out of them. At the back of the standing figure we can recognize an attempt to write *Koshano*, but it is impossible to read anything like *Shaonanoshao Kaneshki* which would complete the inscription, meaning 'Kanishka, the Kushān, King of Kings'. On the reverse of

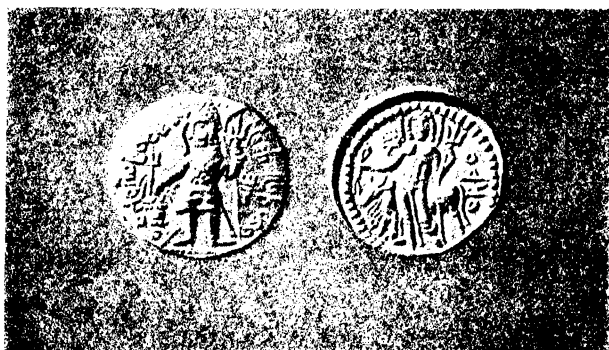
¹ Cf. *ibid.*, Vol. I, Pl. XIX, 209 and 211.

such coins we usually get the legend *Nanashao* consisting of seven Greek letters. In this case also the letters are no doubt seven and the legend occupies the same position as on the known issues of Kanishka of this type. But it can hardly be read as *Nanashao*. There is a demonstrable confusion between *N* and *H*, and the writer seems to have been labouring under an uncertainty about the form of *ṣ* (*sha*). In these circumstances there cannot be any doubt that the coin is a copy anciently made of a certain class of Kanishka's coins. But it must have been issued when the Greek script was forgotten in India, or struck at a place where no artisan was available who knew the script and no attempt on his part to reproduce faithfully the original legend was thought necessary. As to when this coin might have been in circulation we cannot, of course, come to any definite conclusion. But judging from the fact that on coins such corrupt Greek legends came into vogue and were in profusion in the time of Vāsudeva and later, I am inclined to refer the coin to about the Third Century A.D., and it is not impossible that it was issued from some part of Eastern India. There is no other example of this specimen in the cabinet of the Indian Museum.

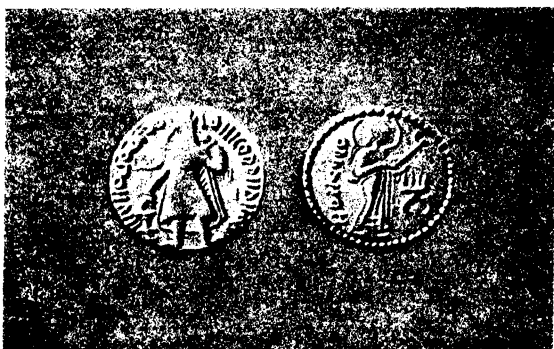
THREE GOLD KUSHĀN COINS
FROM THE RĀJSHĀHĪ DIVISION, BENGAL.



NO. 1. COIN OF VĀSUDEVA FROM MAHĀSTHĀN, BOGRA.



NO. 2. COIN OF VĀSUDEVA FROM MĀLDAH.



NO. 3. KUSHĀN COIN FROM MAHĀSTHĀN, BOGRA.

A 'Line of Time' for Northern Bengal.

[From the period of Gupta domination under Chandragupta Mauryya (c. 300 B.C.) to the Muhammadan conquest of Bengal (c. 1200 A.D.).¹

By H. E. STAPLETON.

While editing the late Khān Sāhib Abid Ali Khān's 'Memoirs of Gaur and Pandua', I was greatly struck by the scarcity of definite information regarding historical events in Northern Bengal prior to the Muhammadan invasion under Ikhtiyāruddīn Muhammad bin Bakhtiyār Khaljī that brought the reign of the Sena Kings in every portion of Bengal except the Eastern Division of Banga to a close. Against the dim background of repeated invasion from outside and the strife of local Kings and Chieftains, almost the only periods of comparative peace were those indicated by the Khalimpur Copperplate Inscription of Dharmapāla—issued from Pāṭaliputra c. 800 A.D., by which land in the Province of Puṇḍravardhana (the modern Rajshahi Division) was granted to Brahmins; and by the Damodarpur Copperplates of Kumāragupta, Budhagupta, and Bhānu (?) Gupta (443–543 A.D.), which show a settled administration of Northern Bengal under the Gupta Emperors of Magadha.

Since the 'Memoirs' were edited, much further light has been thrown on the history of Bengal by (a) the discovery of the Mauryya inscription at Mahāsthān which is dealt with in Dr. Bhandarkar's paper as well as the Kushān and pseudo-Kushān coins that have been described in Mr. N. G. Majumdar's paper. I accordingly again took up the question in consultation with Messrs. N. K. Bhattasali (Curator of the Dacca Museum) and Sarasi Kumar Saraswati (Government Research Scholar, Rajshahi Museum), and now present the results of my enquiries in the annexed tentative 'Line of Time'. In this, as far as possible, all the archæological material that has a bearing on the history of Northern Bengal is summarized in tabular form as a basis for future historical work on the subject. It will be seen from this table that, with the exception of a gap in the period of about 250 years from the period of the Sungas to that of the Kushān King Vāsudeva, a reasonably complete picture of the history of Northern Bengal from 300 B.C. to 1200 A.D. is now available.

January 2nd, 1933.

NOTE.—The Line of Time was subsequently revised in the light of the discussion at the Society's meeting as well as further enquiries. It was resubmitted for publication on March 22nd, 1933.

‘LINE OF TIME’ FOR NORTH BENGAL
TO THE MUHAMMADAN CONQUEST

I Dates.	II Historical Facts.
(1) 313 B.C.	Accession of Chandragupta Maurya at Pāṭaliputra.
(2) 185-73 B.C.	Sunga dynasty of Magadha.
(3) c. 120-160 A.D.	Kushān dynasty of Kanishka reigning from Peshāwar.
c. 160-185 A.D.	Huvishka, Kanishka's son.
c. 185-220 A.D.	Vāsudeva, the Hinduized Kushān successor of Huvishka.
(4) 319-320 A.D.	Gupta era begins in Northern India with the accession of Chandragupta I to the throne of Pāṭaliputra.

FROM THE ACCESSION OF CHANDRAGUPTA MAURYA,
OF BENGAL (i.e., c. 300 B.C. TO 1200 A.D.).

III

Archaeological Material discovered in Northern Bengal and elsewhere
which has a bearing on the history of Northern Bengal
(with Bibliography).

- (1) (a) Fragmentary Maurya Inscription found at Mahāsthān (Bogra Dist.) in November, 1931, in which some ruler issued an order that, for the relief of distress caused apparently by famine to a people called Samvāngiyas, the Mahāmātra (officer) stationed at Pundranagara should (i) make advances in money and (ii) distribute paddy from the district granary on which the inscription was placed. Dr. Bhandarkar in his paper (annexed) suggests that this is the first mention of the Bengalis as a confederation of tribes called Vāngiyas (a name still current in Eastern Bengal under the form Vangas). The inscription also settles the identity of Mahāsthān with the historical Pundravardhana.
- (b) That Jainism was very prevalent in Pundravardhana in the Maurya period may be gleaned from a story in the *Dīrgācūḍāna*, where it is said that on the report that in the city of Pundravardhana, the effigy of Buddha is painted as falling at the feet of Nīrgrantha by the Nīrgrantha (Jaina) worshippers, King Aśoka ordered the slaughter of all Ajīvakas (Jains) there and that 1,800 Ajīvakas were slain in one day (*vide Dīrgācūḍāna*, edited by Cowell and Neill, p. 427).¹

- (2) Terra-cotta plaque of the Sunga period (2nd century B.C.) found at Mahāsthān in 1928-29; now in the Indian Museum.²

- (3) (a) and (b) Two gold coins of the Kushān King Vāsudeva, one from Mahāsthān (now in the collection of the V.R. Society, Rajshahi - V.R. Society, Ann. Rep., 1927-28), and one said to have been found at Māldah in 1888 (now in Mr. H. E. Stapleton's cabinet).
- (c) A gold pseudo-Kushān coin (modelled on those of Kanishka) found at Mahāsthān in May, 1932, and now in the cabinet of the Indian Museum. This is possibly a local coin struck between the end of Vāsudeva's reign and the accession to power of the Guptas, i.e., in the 100 years between 220 and 320 A.D.

A reproduction of these 3 coins will be found in the Plate illustrating Mr. N. G. Majumdar's paper (annexed).

- (4) The Allāhābād Pillar Inscription of Samudragupta (Fleet, *Corpus Inscriptionum Indicarum*, Vol. III, No. 1) mentions Samatata, Davāka, Kāmarupa, and Nepāla as frontier kingdoms of Samudragupta's empire.

Samatata, according to N. K. Bhattasali ('Some image inscriptions from East Bengal', *Ep. Ind.*, Vol. XVII, p. 353), is the area of plain including Tippera which was bounded on the North by the Gāro and Khāsīā Hills, on the West by the old course of the Brahmaputra (through Mymensingh), and on the South by the Bay of Bengal. The next country on the list before Kāmarupa (which was certainly Assam) is Davāka and may be identified with the northern portion of the modern district of Dacca, South-Western Mymensingh, and possibly the modern district of Rangpur.

¹ Vide also Note (1) on p. 145.

² Vide also Note (2) on p. 145.

‘LINE OF TIME’ FOR NORTH BENGAL
TO THE MUHAMMADAN CONQUEST

I Dates.	II Historical Facts.
(5) c. 380-415 A.D. ..	Chandragupta II (Vikramāditya), son of Samudragupta.
(6) c. 415-455 A.D. ..	Kumāragupta I (Mahendrāditya), son of Chandragupta II.
(7) 447-543 A.D. ..	Gupta rule in North Bengal appears to have continued, but a gradual diminution of their authority may be inferred from the Governors taking upon themselves the title of Mahārājās.
(8) 543-c. 590 A.D. ..	The Maukhari prominence in North India who, in their career of expansion, came into conflict with the rising power of the

FROM THE ACCESSION OF CHANDRAGUPTA MAURYA,
OF BENGAL (i.e., c. 300 B.C. to 1200 A.D.).

III

Archaeological Material discovered in Northern Bengal and elsewhere
which has a bearing on the history of Northern Bengal
(with Bibliography).

Its probable boundaries were the Brahmaputra on the East and Karatoyā on the West. Nepāla still retains the name it bore nearly 1,600 years ago. In the light of the mention and location of these apparently still practically independent Kingdoms in North-Eastern India, it seems reasonable to conclude that the ancient province of Puṇḍravardhana had already been incorporated in the Gupta empire.

- (5) (a) Three coins of Chandragupta II: 'Śrīvikrama' (Archer) type—found in Bogra district and now in the collection of the Varendra Research Society, Rajshahi (*V.R. Society, Ann. Rep.*, 1927-28).
- (b) Another coin of the same type found 5 or 6 years ago on a mound near Fatisar (Rajshahi) district and now with Babu Jogendra Nath Mandal of village Pālsā, 2 miles distant (information supplied by S. K. Saraswati).
- (c) The image of Buddha of the Gupta period from Beharail (Rajshahi Dist.), now in the collection of the V.R. Society, Rajshahi.
- (6) (a) The Dhanaidaha (Rajshahi Dist.) Copperplate of Kumāragupta of the year 113 G.E. (432-433 A.D.) registering a sale of land in Khātāpūrā *visaya*,—situated presumably in the Puṇḍravardhana *bhukti*. (*Vide Ep. Ind.*, Vol. XVII, pp. 345 ff.)
- (b) The Damodarpur (Dinājpur Dist.) Copperplates of Kumāragupta of 124 and 128 G.E. (443-444 A.D. and 447-448 A.D. respectively) registering sales of lands in the Kottivarsa *visaya* of the Puṇḍravardhana *bhukti*. (*Vide Ep. Ind.*, Vol. XV, pp. 113 ff.)
- (c) The newly discovered Baigrām (Hili, Bogra Dist.) Copperplate, dated 128 G.E. (447-448 A.D.)—about to be published in *Ep. Ind.* by Dr. R. G. Basak.

These plates show that regular administrative machinery was then working in North Bengal under Governors (*Uparikas*) appointed by the Gupta Emperor. The Governors in their turn appointed District Officials (*Visayapatis*) who were assisted in the local administration by a council of four members.

- (7) (a) The Paharpur Copperplate grant of the Gupta year 159=479 A.D., registering the purchase of fallow state land by a private individual for gift to the Jain Vihāra at Vata-Gohālī presided over by the Jain preceptor Guhanandin. (K. N. Dikshit, *Ep. Ind.*, Vol. XX, pp. 59-64 and plate.)
- (b) The Damodarpur Copperplates Nos. 3, 4, and 5 recording purchases of fallow state lands in the Puṇḍravardhana *bhukti*, the last of which is dated in 224 G.E.=543 A.D. (R. G. Basak, *Ep. Ind.*, Vol. XV, pp. 113 ff.)
- (8) The Haraha Inscription of the reign of Iśānavarman (*Vikrama Samvat* 611=554 A.D.; *vide Ep. Ind.*, Vol. XIV, p. 110) says that Iśānavarman compelled the Gaudas, strong on the sea, to remain within their proper limits. The statement gives rise to two

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I Dates.	II Historical Facts.
	<p>Gaudas, also following a similar course, but the latter were ultimately checked by Išānavarman, the Maukhari King.</p>
<p>(9) c. 590-c. 620 A.D. ..</p>	<p>Saśānka of Karnaśuvārma (Now Kānsonā, <i>alias</i> Rangamati, on the western bank of the Bhagirathi, about 7 miles south-west of Berhampur) becomes supreme ruler in Bengal (cf. ‘Gaudādhīpa’, the epithet of Saśānka in the <i>Harsacharita</i> of Bānabhaṭṭa).</p> <p>Campaign of Harṣa against Saśānka which does not seem to have been very successful (at least while Saśānka was alive).</p>
<p>c. 619-637 A.D. ..</p>	<p>After the death of Saśānka, the power of Bengal was broken by a combination of Harṣa and his eastern ally Bhāskaravarman of Kāmarupa, who is said to have had his camp of victory pitched at Karnaśuvārma. This, however, seems to have been a temporary occupation, though it may have led to the disruption of Saśānka’s empire and the division of Bengal among several smaller chieftains.</p>
<p>(10) 637 A.D. ..</p>	<p>Hiuen Tsang visits Bengal—then divided into six states.</p>

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presumptions : first that by 554 A.D. Gauda was an independent power; secondly, that the Gaudas had not only become independent but were trying to overstep their natural frontiers. Three Kings of Bengal, who must be ascribed to this period on palaeographical grounds, are known, *viz.* Dharmāditya, Gopachandra, and Samāchāra. They are all styled Mahārājadhirājas in their Faridpur plates (*Indian Antiquary*, 1910, p. 216, and *Ep. Ind.*, Vol. XVIII, p. 74 ff.). Except for two coins of Samāchāra from the same neighbourhood, these Kings are only known through the discovery of their Copperplate grants.

- (9) (a) *Mañjuśrīmūlakalpa*, 53rd *Paṭalaristūra* (New reference supplied by Prof. Radhagobinda Basak in his paper on 'Saśānka, King of Bengal'; *J.H.Q.*, Vol. VII, pp. 1 ff.).

(b) In the campaign, Harsa is said to have reached the town of Puṇḍra where he caused great havoc, but from the way in which the author of the *Mañjuśrīmūlakalpa* sums up the results of the war (*Ibid.*, p. 14), they do not seem to have been very satisfactory for Harsa. Evidently only a temporary victory was obtained. The Gaujam Plates of Mahāsāmanta Mādhavavarman (*Ep. Ind.*, Vol. VI, p. 143), mentioning Saśānka as his suzerain as late as 619 A.D., supports this suggestion.

- (c) The Nidhanpur (Sylhet) plate of Bhāskaravarman (*Kāmarupa śāsunāvalī* by MM. Padmanāth Bhattacharyya, pp. 1-43).

- (10) In his time *Pan-na fa-tan-na* (Puṇḍravardhana, *i.e.*, North Bengal), which was more than 4000 *li* (c. 800 miles) in circuit and its capital more than 30 *li* in circumference, had a flourishing population, and was well provided with tanks, hospices, and flowery groves. Jack-fruits were available in plenty. Besides the Buddhists following the Great and Little Vehicles, and the Brahmanas, there lived in North Bengal many Digambara Nirgranthas (Jains). Belief in oracles was current. (Watters on Yuanchwang, Vol. II, p. 184.)

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I Dates.	II Historical Facts.
(11) c. 650 750 A.D. ..	Bengal under local kings who struck coins modelled on those of the Guptas and of Śaśāṅka. Beginning of the period of confusion : but continuance of the revival of Hinduism.
(12) c. 700 A.D. ..	The King of Puṇḍra, who is described even by his enemies as skilful in destroying his enemies, was killed by a chief of the Śaila family who usurped the kingdom and established his family there.
(13) c. 720 A.D. ..	Gauḍa, which, in all probability, was under Kings of the Śaila family and not under Jīvitagupta II as is generally held, was invaded by Yaśovarman of Kanauj.
(14) c. 740 A.D. ..	Lalitāditya Muktāpīḍa, King of Kashmir, defeats and kills Yaśovarman and in his triumphal progress towards the Eastern ocean most probably conquered Gauḍa. He invited the King of Gauḍa to Kashmir where he was murdered. The followers of the Gauḍa King travelled to Kashmir to avenge the murder.
(15) c. 750 A.D. ..	Gauḍa occupied by Harṣadeva of Kāmarupa.
(16) c. 750 A.D. ..	The Kashmir King, Jayāpīḍa, visits Puṇḍra-vardhana, marries Kalyāṇadevī the daughter of Jayanta, the King of Gauḍa, and, after defeating five other chiefs of Gauḍa, made his father-in-law supreme in Bengal.
(17) c. 765 A.D. ..	Gopāla, elected King of Bengal by the people themselves to end the prevalent anarchy. The dynasty he established, which was known as the Pāla dynasty, continued to rule Bengal, though with

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- (11) (a) 'Attribution of imitation Gupta coins' (N. K. Bhattasali, *J.P.A.S.B.*, 1925, P. N. 1 ff.).
(b) Paharpur reliefs of this period show many Hindu gods in which scenes from the life of Krishna (including a relief of Gopī and Krishna) predominate.
(c) Vishnu image in the Rajshahi Museum ascribed by Dr. Kramrisch to 7th-8th century A.D. (Fig. 2, Pl. II, Pāla and Sena Sculpture, *Rupam*, No. 40).
- (12) The Raigholi (Central Provinces) plates of Jayavarddhana (*Ep. Ind.*, Vol. IX, pp. 41 ff.).
- (13) (a) *Gaṇḍavaho* of Vākpatirāja, Ed. by S. P. Pandit (Bombay Sanskrit Series, No. 34).
(b) 'Kanauj and Yaśovarman', V. A. Smith (*J.R.A.S.*, 1908, pp. 765 ff.).
- (14) Kalhaṇa's *Rājatarāṅginī* (Stein's translation, Vol. I, pp. 132-3 and 152-3).
- (15) Puśupati Inscription of Jayadeva, King of Nepal, dated 153 H.E. (759 A.D., *Ind. Ant.*, Vol. IX, p. 178). Jayadeva married Rājyanatī, daughter of Harśadeva of the Bhagadatta dynasty of Kāmarupa, who is styled in the inscription as Lord of Gauḍa, Oḍra, Kalinga, and Kośala.
- (16) Kalhaṇa's *Rājatarāṅginī* (Stein's translation, Vol. I, pp. 160-3).
- (17) (a) *Ind. Ant.*, Vol. IV, pp. 365-366.
(b) Copperplate Inscription of the 32nd year of Dharmapāla found at Khalimpur *alias* Kholi Alampur, 6 miles east of Gaur, verse 4 (*Ep. Ind.*, Vol. IV, p. 243).

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I Dates.	II Historical Facts.
	various vicissitudes of fortune, for about four centuries. Buddhism was the religion of the ruling family, but Hinduism continued to progress.
(18) c. 775-810 A.D. ..	Dharmapāla, son and successor of Gopāla, had a triangular contest with the Gurjaras (Vatsarāja and Nāgabhaṭa) and the Rāshtrakūṭas (Dhruva and Govinda III) for the supremacy of Northern India, in the end of which he appears to have been successful, as in all the Pāla records he is uniformly described as the paramount sovereign of Northern India.
(19) c. 810-850 A.D. ..	Devapāla, son and successor of Dharmapāla, maintained his supreme position in Northern India.
(20) c. 850-970 A.D. ..	Vigrahapāla I (Surapāla I), Narāyanapāla, Rajyapāla, Gopāla II, Vigrahapāla II. Gradual decline of the Pāla power in Northern India, before the eastward expansion of the Pratihāras under Bhoja and Mahendrapāla. Indeed, the political power of the Bengal Pālas sank so low that, about the beginning of the 10th century A.D., they may for a time have been ousted from their homeland, Varendrī, by Mahendrapāla.
(21) c. 970-980 A.D. ..	Occupation of North Bengal by Kāmbojas, who probably ousted Vigrahapāla II.
(22) c. 985 A.D. ..	Mahīpāla I, son of Vigrahapāla II, recovers North Bengal.

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- (18) (a) The above-mentioned Khalinpur Inscription of Dharmapāla, issued from Pāṭaliputra but granting villages in Puṇḍravardhana *bhukti*.
 (b) Seal of the community of monks at the monastery of Somapura founded by Dharmapāla, discovered at Paharpur in 1926-27 (*A.S.I., A.R.*, pp. 149 and 199).
 (c) Baroda grant of Karkarāja (*Ind. Ant.*, Vol. XII, p. 160).
 (d) Wani grant (*Ind. Ant.*, Vol. XI, p. 157).
 (e) Gwalior Inscription of Bhoja (*A.S.I., A.R.*, 1903-04, pp. 280-81).
 (f) Unpublished Copperplate of Amoghavarṣa by D. R. Bhandarkar (*Ep. Ind.*, Vol. IX, p. 26, note 4; *J.B.R.A.S.* Vol. XXII, p. 118).
 (g) R. C. Majumdar, 'Pāla Chronology' (*J.P.A.S.B.* 1921, pp. 1 ff.).
- (19) Consideration of the Nāḥanda Copperplate of Devapāla deva, year 39 (*Vide* N. C. Majumdar, *F.R.S. Monographs* No. 1) necessitates the pushing back of Dr. R. C. Majumdar's chronology by a further five years.
- (20) (a) Badal (Dinājpur) Pillar Inscription of Bhaṭṭa Gurava Miśra, the Minister of Nārāyaṇapāla (A. K. Maitra, *Gaudalekhamālā*, pp. 70-85).
 (b) The Paharpur (Rajshahi) Pillar Inscription of the year 5 of Mahendrapāla (c. 900 A.D.; *A.S.I.A.R.*, 1925-26, p. 141).
 (c) Miniature inscribed image of Jambhala from Paharpur (now in the Indian Museum), 10th century A.D.
- (21) The Dinājpur Pillar Inscription (*J.A.S.B.*, Vol. VII, p. 619), records the erection of a temple at Devikot by a King of Kāmbhoja extraction. Mr. R. P. Chanda takes the word 'Kuñjaraghaṭāvārṣa' of the inscription as the date 888 Śāka. Dr. R. C. Majumdar is inclined to take it as an epithet (*viruda*) of this Gaudapati of Kāmbhoja extraction, and suggests that he may be identified with Sāhilladeva, King of Chamba, who acquired the epithet 'Karivārṣa' by destroying herds of elephants of the enemy at Kurukṣetra. (*Varāgavānī of Chaitra*, 1330 B.S., pp. 249-52.)
- (22) (a) The Bangarh (Dinājpur) Copperplate grant of Mahīpāla, year 9. (A. K. Maitreya, *Gaudalekhamālā*, pp. 91-100.)
 (b) Mahīpāla dighi, 18 miles to the S.-W. of Dinājpur.
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I Dates.	II Historical Facts.
(23) c. 1026-1070 A.D. ..	Nayapāla ; Vīgrahapāla III ; Mahīpāla II.
(24) c. 1070 A.D. ..	Kaivartta revolt, and the temporary eclipse of the Pāla power in North Bengal.
(25) c. 1077 A.D. ..	Rāmapāla, youngest brother of Mahīpāla II, defeats and kills Bhīma, the Kaivartta King and recovers North Bengal. Foundation of Rāmāvati, the new Pāla capital, on the present site of Gaur. Assam conquered (or invaded) by a feudatory of Rāmapāla.
(26) c. 1120 A.D. ..	Succession of Kumārapāla, who reconquered Assam.
(27) c. 1125 A.D. ..	Gopāla III, son of Kumārapāla.
(28) c. 1130 A.D. ..	Madanapāla, youngest son of Rāmapāla, succeeds Gopāla III.
(29) c. 1140 A.D. ..	North Bengal passed into the hands of the Senas under Vijayasena, who had already wrested Rādhā and Mithilā from the Pālas, and who now drove away the King of Gauḍa (evidently Madanapāla). The latter took shelter in Magadhā where he reigned for a few years more.
(30) c. 1165-1178 A.D. ..	Vallālasena, son of Vijayasena.
(31) c. 1178-1208 A.D. ..	Lakṣmaṇasena, son of Vallālasena.

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- (23) The Āṅgachi (Dinājpur) Copperplate grant of Vīraḥapāla III (A. K. Maitreya, *Gaudalekhamālā*, pp. 121-26), granting land in his 13th year in the village Brāhmanī, situated in the Koṭivarṣa *viṣaya* of the Puṇḍravardhana *bhukti*.
- (24) The Dhīvardighi pillar near Devīkot (Dinājpur), though uninscribed, is connected by local tradition with the successful Kaivartta revolt under Bhīma in Varendra, which forms the subject matter of Sandhyākara Nandī's *Rāmācharitam* (A. K. Maitreya, 'The Stones of Varendra', reprinted from the *Modern Review*, 1912, September, p. 6).
- (25) (a) *Rāmācharitam* of Sandhyākara Nandī, Edited by MM. Hara-prasad Sastri (*M.A.S.B.*, Vol. III).
(b) The extensive embankment in the Bogra district, known as *Bhīmer jāngāl*, most probably represents the defensive work set up by Bhīma against the army of restoration under Rāmapāla.
- (26) The Kamauli Plates of Vaidyadeva (A. K. Maitreya, *Gaudalekhamālā*, pp. 127-146), Vaidyadeva was the Minister of Kumārapāla, and afterwards became King of Kāmarupa.
- (27) The Rajshahi (Mauda) Stone Inscription (now in the Indian Museum) of Gopāla III (R. D. Banerji, *M.A.S.B.*, Vol. V, p. 102).
- (28) The Manahali (near Devīkot, Dinājpur) Copperplate grant of Madanapāla, year 8, granting the village Kāsthagiri situated in Koṭivarṣa *viṣaya* in Puṇḍravardhana *bhukti* (A. K. Maitreya, *Gaudalekhamālā*, pp. 147-58).
- (29) The Rajshahi (Deopara) Inscription of Vijayasena (N. G. Majumdar, 'Inscriptions of Bengal', Vol. III, pp. 42-56).
- (30) Vallāl-bāri, the northern part of Gaur, probably was the twin palace and fortress of Vallālasena.
- (31) (a) The Tarpanadighi (Dinājpur) Copperplate grant of Lakṣmaṇasena, year 3 (N. G. Majumdar, *op. cit.*, III, pp. 92-105), granting the village Belahishṭi in Varendrī within the Puṇḍravardhana *bhukti*.

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I Dates.	II Historical Facts.
<p>(32) c. 1202 A.D. ..</p>	<p>Invasion of Ikhtiyāruddīn Muḥammad bin Bakhtiyār, who occupied North Bengal up to a line somewhere north of Devikot. He unsuccessfully invaded Assam in 1206 A.D. and died shortly afterwards.</p>

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- (b) The Mādhānagar (Pabna) Copperplate grant of Lakṣmānasena (N. G. Majumdar, *op. cit.*, pp. 106-115), granting the village Dāpanīyapātaka in Varendrī within the Puṇḍravardhana *bhukti*.
- (c) The lost Bhowāl Copperplate (*Indian Historical Quarterly*, Vol. III, pp. 89-96) which appears to have been dated in the 27th year of Lakṣmānasena, closely resembles the draft of the Mādhānagar plate (date lost) and not that of the Anulia, Tarpandighī, Govindapur, and the Jaynagar plates all dated in his early years. The Mādhānagar plate thus seems to have been dated in his later years.
- (d) For date of the accession of Lakṣmānasena, cf. C. H. Chakravarty (*I.H.Q.*, Vol. III, pp. 186-189).
- (32) (a) *Tabaqāt-i-Nāgīrī*, translated by Raverty (Vol. I, pp. 556-573).
 (b) N. K. Bhattasālī in his paper on the Determination of the Epoch of the *Parganāti* Era gives *Sāka* 1124, i.e., 1202 A.D. from which date the *Parganāti* or the *Fallālī* Era begins, as the date of the occupation of North Bengal by Muḥammad bin Bakhtiyār (*Ind. Ant.*, Vol. LII, 1923, pp. 314-320).
 (c) The Rock inscription at Kamaibarshī to the north of Gauhati (MM. Padmanatha Bhattacharyya, *Kāmarupa Sāsānāvalī*, Introduction, p. 44), states that on the 13th *Chaitra* in the *Sāka* year 1127 (27th March, 1206 A.D.) the Turuṣkas, who had come to Kāmarupa, were utterly destroyed.

NOTES TO PAGE 133.

(1) For iconographic traces of Jainism in Northern Bengal, *vide* the annexed paper by S. K. Saraswati dealing with his Third Tour. In this two images are mentioned (a) one of the Sixteenth Tīrthaṅkara Śāntinātha from Mandoil, Dist. Rajshahi; (b) one of Rishabhanātha—the first of the 24 Jain Tīrthaṅkaras—discovered at Surohor on the opposite side of the Chirāmanā, Dist. Dinājpur, to the old site of Ekilālā. In each case miniatures of the remaining 23 Tīrthaṅkaras surround the main image. As these images date from the 11th-12th century A.D., they indicate the survival of Jainism in Northern Bengal for 1,400 years after the time of Asoka.

For other mentions of Jainism in this part of Bengal *vide supra*, para. 7(a)—Gupta times; and para. 10 (in the 7th century A.D. after the end of Śaśāṅka's reign).

(2) A plaque of probably the same period (2nd century B.C.), but representing a standing Yakshini, was discovered by Prof. Sumit K. Chatterji at Pokpārnā (the ancient Pushkaraṇā) in the Bankura District in 1932, and exhibited at the A.S.B. meeting of March 6th, 1933.

Note on a seated and inscribed image of Sūryya from Qaşbah (Ekdālā), District Dinājpur.

By N. CHAKRAVARTI and S. K. SARASWATI.

Next to the images of Viṣṇu, those of Sūryya are the most numerous in Bengal. The form of the Sun-god, closely resembling that of Viṣṇu in general appearance, may be said to be almost stereotyped, the god usually standing erect on a lotus with two attendants, a male and a female, on either side. Seated images of Sūryya are however very rare and, as such, a brief notice of the present image, a seated sample collected from Qaşbah near Bairhātṭā (Ekdālā, Dinājpur) by Mr. H. E. Stapleton, Director of Public Instruction, Bengal, during a tour in 1930, and now presented by him to the Indian Museum, will not be superfluous.

The image is in a good state of preservation, except for the hands being broken off, the nose mutilated, and the upper part of the body of a figure in front of the god lost. Out of the *pañcharatha* pedestal, and dividing it into two sections, emerge the seven horses of Sūryya's car. Below the central horse there is a wheel indicating the one-wheeled chariot of Sūryya, and to the extreme right there are two human figures, a male and a female, probably the donor and his wife. Above the central horse *Aruṇa*, the thighless charioteer of Sūryya, sits on a *makara* clasping its trunk with the left hand while the right swings a whip. He is flanked on either side by *Uṣā*, and *Pratyusā*, shooting arrows to dispel darkness at the approach of the dawn. Behind *Aruṇa* sits in *arddhaparyāṅka* a figure, the upper part of which is unfortunately missing. The figure most probably represents the goddess *Mahāśvetā* who is enjoined to be placed just in front of the god.¹

The god sits in *vajraparyāṅka* on a lotus, booted as in other Sūryya images, and wears a close-fitting garment fastened to the waist by an elaborate girdle from which hang on either side a sword and a dagger. He also wears a coat of mail—again a speciality with him²—as also the other usual ornaments, such as the necklace, the ear-rings, the bracelets, the armlets and a tapering crown (*Kirīṭamukuta*). He holds in his two hands

¹ Cf. *Bhaviṣya-Purāṇa*, 130, 52.

Piṅgalo = *ākṣiṇe pūrṣve vāmato* = *Danḍanāyakaḥ*
Srī Mahāśvetāyāḥ sthānaṁ purataḥ = *teamśumālīnaḥ* ||

² Cf. *Vishṇudharmottaram*, III, 67.

..... *kavachen* = *ābhisaṁvṛtaḥ* |

(both broken away), two lotuses—his usual attributes—which rise a little above his shoulders.

On his two sides appear his four attendants, all booted and seated in *arddhaparyāṅka*. To the extreme right there is a stout bearded male figure with pen and inkstand in his two hands. He is known as *Piṅgala*, *Agni*, or *Dhātā* (i.e., *Brahmā*) as he is variously called.¹ To the extreme left of the image there is another male figure with his right hand in *abhaya mudrā* and the left resting on the thigh and holding a sword erect. He is uniformly styled as *Danda*, *Dandī* or *Dandanāyaka* (meaning *Skanda*, the general of the heaven) by all the authorities excepting the *Agnipurāṇa* which wrongly calls him *Piṅgala*.² The two female attendants with chowries on either side of the deity represent his two wives *Rājñī*, *Sureṇu* or *Dyau*, the daughter of *Viśvakarmā*; and *Chhāyā*, *Nikshubhā* or *Prithivī*, the earthly double of the former.³

On both sides of the god there are represented on the back slab eight small figures, one above the other and four on each side, representing eight out of the nine *grahas* of Hindu astronomy, the sun being the ninth. Flames are also shown on the back slab, as also two symbols on each side, the exact significance of which we are unable to understand. The one resembles an arrow, or a *Sakti*, and the other a crescent with a ball on it supported on a shaft. Above, on either side, a flying *gandharva* with garland overhangs the pointed stela which is topped by a *Kīrttimukha*.

The seated image of *Sūryya* is a rarity. So far as we are aware only two other such specimens have been found in North-Eastern India. One of them, an octo-alloy miniature from the ruins of Deulbādi in the district of Tipperah (where it was discovered along with an inscribed image of *Śarvānī* of the 7th-8th century A.D.⁴) has now been set up in the temple at Chandimudā close to the Lalmai station on the A.B. Railway. The Tipperah specimen, though much earlier in date, agrees in general with the present one from Dinājpur, the only difference being the absence of the two queens of *Sūryya* in the Tipperah specimen. The difference however is not serious when we remember that in the earlier (8th century) images

¹ Cf. 1, and *Vishṇudharmottaram*, III, 67.

Dakṣiṇe Piṅgalo = *bhāge kartavyaś = chātīpiṅgalaḥ* |
also *Bhaviṣya, Purāṇa*, 124, 19.

Agnir = dakṣiṇapārśve tu piṅgalatvāt sa Piṅgalaḥ |
also *Matsya Purāṇa*, 261, 6.

Lekhanīkṛitahastañcha pārśve Dhātūram = avyayam |

² Cf. 51, 2.

Vāme tu Piṅgalo = Dvāri Daṇḍabhṛit sa raver = gaṇaḥ |

³ Cf. *Agni Purāṇa*, 51.

Vālavayanadhārinīyau pārśve Rājñī cha Nishprabhā (Nikshubhā) |

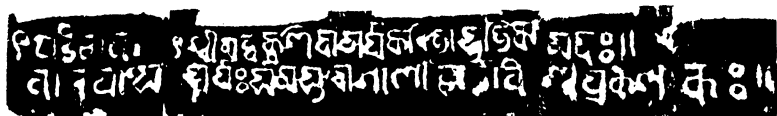
⁴ Bhattasali, N. K., *Iconography of Buddhist and Brahminical sculptures in the Dacca Museum*, p. 172, pl. LIX.

of Sūryya¹ the two queens generally do not occur. The Museum of the Varendra Research Society also has a copper miniature of a seated Sūryya, recovered from the neighbourhood of Mangalbari in Dinājpur.² It represents the four-armed deity seated at ease on the seven-horsed chariot which *Aruṇa* is driving from behind. This specimen—which has to be dated in the 15th-16th century A.D.—presents however a wide divergence from the image under discussion.

At the base of the sculpture there is an inscription in two lines. The first line is in two parts, the first part containing fourteen letters and the second two only. The second line is divided into three parts, the first containing eleven, the second four, and the third one letter only. The two lines together form a regular *Anuṣṭubh* verse. It opens with the sign for *Om* and seems to record the name of the donor, who, after causing the image to be made, dedicated it.

L. 1. *Om. Śrīmad=vaktraśivāchāryaka(kā)rito=bhu-*
(*bhū*)*tika(kā)madah |*

L. 2. *Sūryaḥ samastarogānāmharttā viśvapra(kū)-*
śakah |



(The sign after '*bhu*' in the first line which looks like the sign for *ā*, appears to be only a mason's mark as it goes above the line.)

'(An image of) Sūryya (the Sun-god), the bestower of welfare and desire (of the people), the remover of all diseases and the irradiator of the Universe, has been caused to be made by the illustrious *Vaktraśivāchārya*.'

To the right of the above inscription there are two short lines each containing four letters, the first line of which opens with the symbol for *Om*.

L. 1. *Om. Paṇḍarika*

L. 2. *Vārapāsa*

This inscription most probably gives the name of the artist, executing the image, as *Vārapāsa*, who is a *Paṇḍarika* (*Puro* in common parlance) by birth. *Paṇḍarika* which seems to have come from *Paṇḍraka* most probably represents the territorial name of the original inhabitants of *Paṇḍra*, i.e. North Bengal.

¹ Cf. *V.R.S. Ann. Rep.*, 1926-27, pl. I, fig. 1, and *Rupam*, No. 40, fig. 4.

² *V.R.S. Ann. Rep.*, 1927-28, fig. 3.

Neither of the inscriptions contains a date, for which therefore, palæographical considerations are our only guidance. The characters are old Bengali with only a few exceptions, such as *Cha*, *Na*, *Sa*, and *Ha*, but we do not get the Bengali form of these letters before the 15th century A.D. Most of the letters, viz. *Cha*, *Da*, *Pa*, *Ya*, *Ra*, *Śa*, and *Ṣa* are similar to the corresponding letters of the Tarpandighi (Dinājpur) copperplate of the year 2¹ (1180 A.D.) of Lakshmana Sena, and the Dacca image inscription of the year 3² of the same King (1181 A.D.). But other letters such as *Ka*, *Na*, *Ta*, *Ma*, *Va*, and *Ha* show later forms, some resembling those of the Sāhitya Pariṣat Copperplate of Viśvarupasena³ (c. 1st quarter of the 13th century A.D.), one or two, e.g. *Ta*, *Va*, exhibiting forms still later. It will not be unreasonable therefore to ascribe the epigraph on these grounds to the first quarter of the 13th century or even a little later.

If the dating of the inscription, and thus of the sculpture, is correct it would appear that even after the invasion of Muḥammad-i-Bakhtiyār in 1202 A.D., the Hindus remained in possession of Bairhātṭā for sometime longer. The confirmation by Mr. Stapleton, after a study *in situ*, of Mr. E. V. Westmacott's theory that the site of Ekdālā—the fortress from which both Ilyās Shah and his son Sikandar Shah of Bengal successfully beat off the attacks of the Emperor Firūz Shah of Delhi in 1354-55 and 1358-59 A.D.—should be identified with Bairhātṭā,⁴ shows however that the Hindus had lost this important fortress by the middle of the 14th century, i.e. within 100 years of the date assigned to this inscription.

March 8th, 1933.

Note.—We have to thank Mr. K. N. Dikshit, Superintendent, Archæological Section, Indian Museum, for his courtesy in supplying a photograph and estampage from which the annexed plate has been prepared.

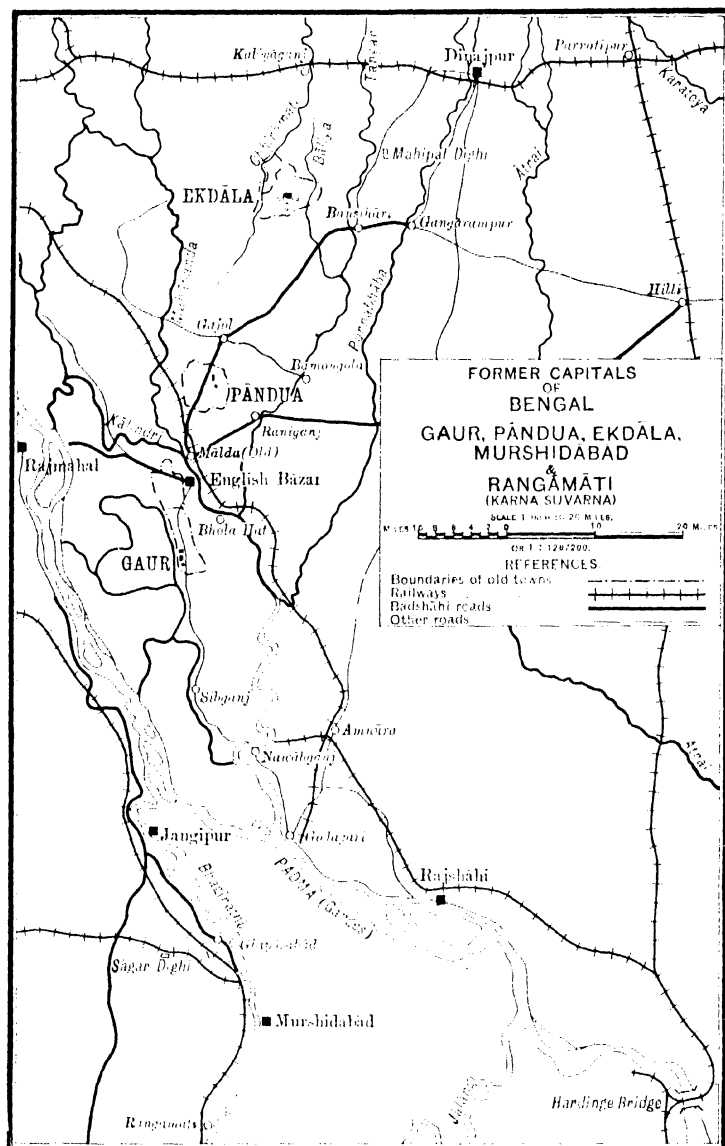
¹ *Ep. Ind.*, Vol. XIII, p. 8 and pl.

² Majumdar, N. G., *Inscriptions of Bengal*, Vol. III, pp. 116-27 and pl.

³ *Ibid.*, pp. 140-48 and pl.

⁴ *J.A.S.B.*, 1874, part I, pp. 244-45.





**Note on the Historical and Archæological results of a
Tour in the Districts of Māldah and Dinājpur,
December 24th–31st, 1932.**

By H. E. STAPLETON.

The objects of this tour were : (A) to verify the site of the battle between Sikandar Shah and his son Ghiyāsuddīn in which the former lost his life *c.* 1390 A.D. ; (B) to make further enquiries regarding the old Hindu city of Ekdālā before which two battles took place between Firuz Shah of Dehli and (a) Shamsuddīn Ilyās Shah of Bengal in the spring of 1353-4 A.D. and (b) Sikandar Shah, Ilyās Shah's son, in the cold weather of 1358-9 A.D. ; and (C) to enquire into the possibility of Karanjī, a large *manza* 15 miles to the W.S.W. of Dinājpur, being the native village of Rājā Ganesh who (with his son Mahendra) reigned over Bengal for a short period about 1416-19 A.D.

(A) THE SITE OF THE BATTLE IN WHICH SIKANDAR
SHAH WAS KILLED.

The *Riyāzu-s-Salātīn* (Abdu-s-Salām's translation, p. 107) says Ghiyāsuddīn advanced with a large army from Sonārgāon, and encamped at a place called Sonārgādhi. The actual fight took place at Goalpara. Various conjectures have been made where this Goalpara was. Blochmann (*J.A.S.B.*, 1873, p. 256) suggested that it was the village three miles S.W. of Pandua (i.e. within the ramparts of that town that have been discovered by examination of the recently-taken air photographs) while Dr. Wise (*J.A.S.B.*, 1874, p. 85—following Taylor, *Topography of Dacca*, p. 109) argued it was near Ja'farganj, a place that formerly existed in the west of the Dacca District, nearly opposite the present Goalundo at the junction of the Ganges and Jamuna. On the other hand, as I pointed out in my Presidential Address to the Numismatic Society at Patna in December, 1930 (*Numismatic Supplement*, No. XLIII, *J.A.S.B.*, p. 5), neither of these suggestions are probably correct in view of the information contained in Buchanan Hamilton's *Historical Description of Dinājpur* (published by the Asiatic Society of Bengal in 1833) which seems to have chiefly been drawn from a 16th century Persian MS. that this explorer obtained in Pandua in 1808 (*op. cit.*, pp. 22, 25, and 69). In this work, it is stated (p. 23) that Sikandar 'fell in battle at a place called Satra near Goalpara (probably the Chattera river) which is situated between the Tanggon and Punabhoba [rivers] near a favourite country residence of the King'. Elsewhere (*op. cit.* p. 40) Buchanan Hamilton states that this residence was

'on the banks of the Tanggon, about 8 or 9 miles south from Bamongola. The ruins are said to be very extensive and to contain many bricks and stones'. Apparently from the next paragraph (quoted in the footnote below) Buchanan Hamilton understood this place to be called Sekundura, but the only *mauza* of this name—written in the 1"=1 mile Sakandra—that is known at present is 6 miles further south in the *bil* on the other side of the Tangan, and about a mile from the river.

It may be observed in this connection that as no Moslem authority has ever expressed the slightest doubt about Sikandar Shah, the builder of the Adina Mosque, having been buried in the annexe to that Mosque, the identification by Buchanan Hamilton of the site of the battle is far more probable than Taylor's story of the battle between Sikandar Shah and his son having taken place far away from Pandua at Goalpara in the Dacca District, near the present junction of the western end of the Dhaleswari and the Jamuna. The alleged tomb of Sikandar Shah at this Goalpara had fallen into the river before the close of the 18th century, and even Dr. Wise may have had some doubt of the truth of the local Dacca story, as he notes, with regard to a *Dargāh* of Sikandar Shah that had existed until just before he wrote in 1874 at Goariah, 10 miles to the west of the Dacca Goalpara, that the then 'oldest inhabitant' was positive that the *Dargāh* was that of a faqīr and not that of a King (*op. cit.*, note†).

Owing to my not being able to find an opportunity, prior to the close of last year, of visiting the site indicated by Buchanan Hamilton, enquiries were started through the local Inspectorate, and two years ago I was informed by M. Najmu-l-Husain (Assistant Inspector of Schools for Muhammadan Education, Rajshahi Division) that he had discovered at a place called Rāniganj on the Tangan, about 8 miles south-west of Bamangola, a ruined bridge, with fortified bridge-heads, and that a well-raised *Bādshāhī* road¹ ran from this bridge eastward.

¹ This road is evidently the one referred to in the following paragraph on p. 40 of the *Historical Description of Dinājpur* where it directly follows the passage already quoted. It is hardly possible that the road was constructed by Husain Shah, though he may have repaired it. It is a pity that (like Rennell) Buchanan Hamilton was not able personally to visit the bridge-site, or we might now possess a full description of the place with its connected roads that would throw fuller light on their history.

Hoseyn Shah formed a fine road through the country between the Tanggon and Punabhoba, and it is said to have extended to Ghoraghat; but I have not been able to trace it. The width is said to have been 348 cubits, with a large ditch, and many fine trees on either side, and bridges constructed of bricks. The whole is overgrown and gone to ruin; from these dimensions, it must rather have been a work of ostentation than utility, and probably was rather an appendage to the country residence of the Kings at Sekundura, than a military way to Ghoraghat.'

At Bamangola—which is still a *Thānā* Headquarters—the Tangan river runs practically North to South, but it then begins to bend to the S.W. and after 4 miles or so turns almost completely west, being flanked on the south bank for 2 or 3 miles by the *Bādshāhī* road. Finally, at a place called Rāniganj, the river takes a sharp bend to the south and, formerly was spanned by the bridge already mentioned. At some time however the river broke through the road close to Rāniganj, and the main course of the river now lies a little to the East, and only a narrow stream is now left along the original course which runs through what was the southernmost arch of the bridge, though the actual arch has now disappeared. The remaining spaces between the piers seem to have been deliberately filled up. It is difficult to be certain as to what happened, but an inspection of the ruins of the bridge suggests that its present condition is due to the efforts of an invading army from the east to force a passage across the river after the bridge had been broken down by adversaries who held the western bank. The broken archways seem to have been filled up to make a causeway except for the southernmost one, which, perhaps, it was hoped to bridge by timbers, or force a passage through the water by elephants. The natural result of confining the stream to such narrow limits was to cause extreme pressure higher up stream along the *Bādshāhī* road and this led to the road being breached and the bridge, with half a mile of road to the north, left as a sort of island. This would naturally cause the former river bed to become very shallow, and if a sufficient force—as well as some elephants—remained on this island, it is just conceivable that, in their desperate plight, they might have successfully fought their way across, and then moved up stream to the western bank near Rāniganj above the break, so as to facilitate the crossing of the rest of the invading force.

The village of Rāniganj (or rather group of villages) is variously known as Rāniganj, Rānigarh, Goalpara,¹ and Fuldangi, and stands on high land at a spot where two ancient roads converged. One of these (to be mentioned later) ran N.W. to the Eastern Gate of Pandua, while the other (which, up to now, no one seems to have observed—Rennell, for instance, does not show it in any of his maps) is the continuation of the main *Bādshāhī* road from the East, and runs in an almost direct line to Old Māldah. The *bil* that is situated immediately to the south of the ruined bridge is still known as Chatra¹ *Bil*,

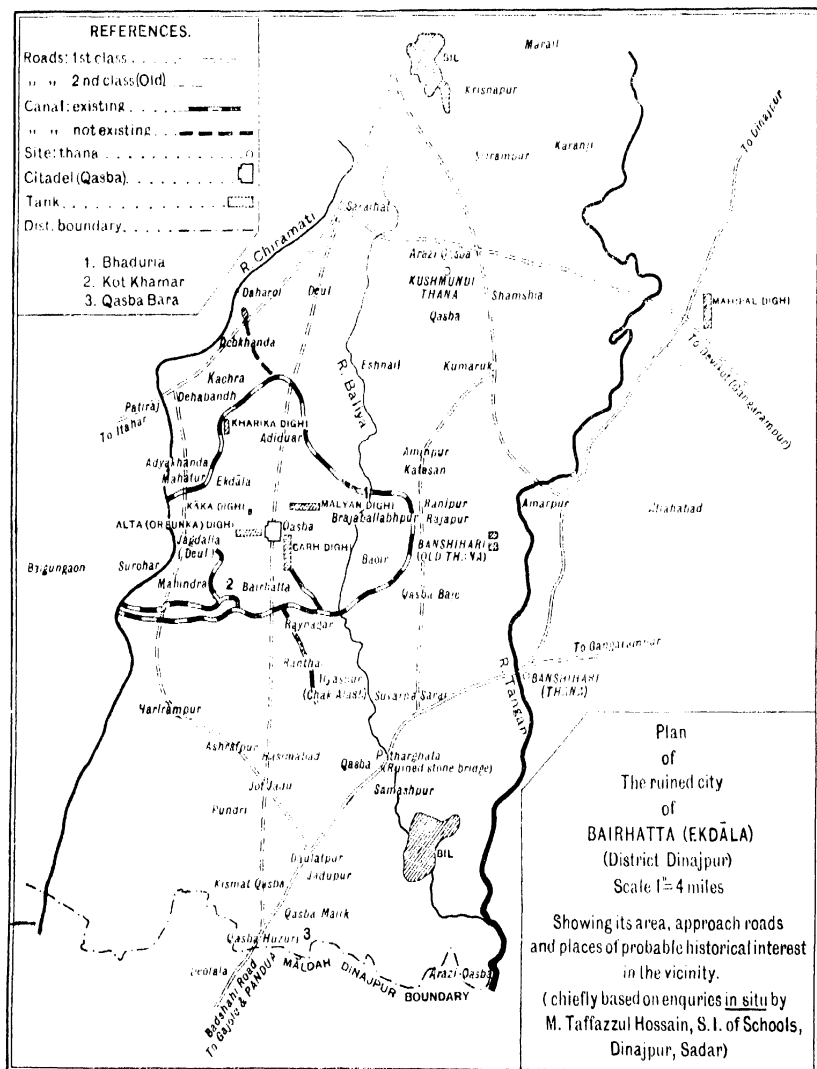
¹ The names Goalpara and Chatra are common ones in the vicinity for, besides the Goalpara within the perimeter of Pandua in its S.W. corner, there is another village of this name 3 miles east of Rāniganj on the Eastern *Bādshāhī* road, while 4 miles south of this is a village called Chatra on another road, running roughly N.E. to S.W. along the slightly raised watershed between the Tangan and Purnabhava rivers.

and possibly once extended much further to the south as another *bil* of the same name is found at the other end, and just to the east of the *Bādshāhī* road near Old Māldah. If so, it evidently marks a former bed of the Tangan. Buchanan Hamilton's reference to the Chattera river (though only based on hearsay) rather suggests that in his time—125 years ago—there was actually a small stream in this neighbourhood called Chattera or Chatra, which may have been a branch of the Tangan, flanking the *Bādshāhī* road to Old Māldah on the East.

As regards the name Sonārgādhī given by the author of the *Riyāzu-s-Salātin* as the place where Ghiyāsuddīn encamped before the battle in which his father Sikandar Shah was killed, we have on the one hand the name Rānīgarh, while on the other the names of the *mauzas* immediately adjacent to Rānīgarh on the west are Sonabar and Sonapur, so that the name mentioned by Ghulām Husain is readily understandable. In view of all the facts now stated, it seems practically certain that the battle between Sikandar and his rebellious son took place in the immediate vicinity of this vitally important river-crossing on the main *Bādshāhī* road from Ghorāghāt to Gaur.

Further enquiries at the time of my visit showed that a *pucca* brick-on-edge road ran to the Adina Mosque from Rānīganj, and, on following this up, a fine and well-cambered specimen of the roadway was found absolutely intact, just inside the Eastern Gate of Pandua where the road passed through the eastern line of fortification. The road here measures as much as 51' in breadth, and this specimen of the old road should certainly be proclaimed as a protected monument by the Archaeological Department, as nowhere else (so far as is known) has any similar stretch of road been found. If the identification of the site of the battle with Rānīganj-Goalpara is correct, it was evidently along this road that the victorious Ghiyāsuddīn rode after the battle to slaughter his 17 elder brothers and to take possession of his father's palace at Satāisghara—immediately to the west of the Adina Mosque—about 7 miles distant from Rānīganj.¹ It is worth noticing that while, near this Eastern gate, no details of the structure of the city wall of Pandua can be traced, on the other side of

¹ Sikandar Shah, and his father Ilyās Shah, when they settled at Rānīganj and Satāisghara, only reoccupied places that were previously used as residences by the Hindu Kings of Pandua. In the case of Rānīgarh, its previous existence under Hindu rule, as far back probably as the 10th century A.D., is shown by the style of the capital described by Babu Sarasi Kumar Saraswati in the first of his annexed papers, while the antiquity of the citadel of Pandua in which Ilyās Shah built the Satāisghara Palace is indicated not only by its immediate proximity to the large N x S tank (now silted up) known as the *Sukān Dighi*, but also by the 9th century inscription found by Sarasi Babu on one of the pillars of the Adina mosque.



the city, two miles to the west of Adīna, my wife and I were fortunate enough to find a section of the western embankment¹ which showed that, when it was made, first a wall 8½ ft. thick was built and then earth was heaped up on both sides from an external and internal moat.

(B) THE FORT OF EKDĀLĀ, TWICE BESIEGED BY
FIRUZ SHAH.

The site of this place has also been much discussed. Blochmann merely quoted the statement of Muhammadan historians that it was near Pandua. Westmacott was told in 1874 by the Manager of the Chanchol estate in Māldah District that he had come across a tract of high land which the local people called Ekdālāh, and, from a study of the Survey map, coupled with a quotation from Buchanan Hamilton, Westmacott decided that it lay between the Chirāmatī and Bāliya rivers (*J.A.S.B.*, 1874, pp. 244-5). The correctness of his conclusion was however disputed by Beveridge in his analysis of Hāhi Bakhshī's *Khurshād-i-Jahān Numā* (*J.A.S.B.*, 1895, pp. 227-229) and, following Taylor (*op. cit.*, p. 115), Beveridge very rashly decided in favour of the Ekdālā on the Lakhya river in the north of Dacca District.

The only other suggestion for the identification of the site that has since been published is the one contained in the late Khān Sāhib 'Abid 'Alī Khān's *Memoirs of Gaur and Pandua* (pp. 17 and 23) that Ekdālā was at Bisānkoṭ (or Kālāpāhār Garhī) at Murchā on the Kālindri river—a stronghold that was constructed about 1220 A.D. by Ghiyāsuddīn 'Iwaz, an early semi-independent Governor of Bengal. As, however, I pointed out in a note on p. 23 of the Khān Sāhib's book, the chief objections to this theory are (a) that there is no place called Ekdālā in the vicinity of Murchā: and (b) that, if correct, it would imply that instead of retiring from Pandua on the approach of Firuz Shah, both Ilyās Shah and Sikandar Shah threw themselves into a fort which lay on the road that Firuz Shah had already traversed. Apart from the psychological improbability of any such strategical move on their part, this would only have resulted in their being immediately surrounded and besieged as—in addition to the roads from Upper India (either via Rājmahal or Purnea) leading past Bisānkoṭ—there was easy access to Bisānkoṭ on the east from Old Māldah (Firuzpur) which Firuz Shah had already reached. I further noted that the Persian history, obtained by Buchanan Hamilton

¹ As is evident to anyone who rides over the country immediately to the west of Pandua, the original course of the Mahānandā must have been quite close to the entire western face of the city, and, in all probability, this constitutes the chief reason why Pandua is sited where it is.

at Pandua, stated that Ilyās Shah retired to *Ghorāghāt*, and that if this is correct, the site of Ekdālā must be looked for along the military road to Devikoṭ that was constructed by Ghiyāsuddīn, and at least 7 *kos* (14 miles) from Pandua.

I accordingly asked M. Tafazzul Hossain, Sub-Inspector of Schools, Dinājpur (Sadar), in whose area Westmacott's Ekdālā lies, to tour in this direction, and as his report included the mention of the existence of a moat round the entire area in which Ekdālā, Bairhātā (*Qasbah*), and the three large adjacent tanks are found, I took the earliest opportunity of visiting the place myself. What I then saw (1930) convinced me of the accuracy of Westmacott's opinion, and the present tour was chiefly undertaken with the object of verifying my previous observations as well as of collecting further historical data.

The information supplied by the principal Muhammadan authorities (Ziya Barani, Shams-i-Sirāj Afif, and Ghulām Husain—in the *Riḡāzu-s-Salātīn*) as to the topography of Ekdālā is somewhat scanty and may be summarized as follows :—

- (1) Ekdālā was a *mauza* near Pandua, which had water on one side and jungle on the other (Barani).
- (2) It was called the 'Islands of Ekdālā' and was provided with a moat 20 *gaz* (60 ft.) broad (Afif). Before it was a large deserted plain—the latter evidently cleared of villages to prevent Firuz Shah getting supplies.
- (3) It was *beyond* Pandua to anyone approaching Pandua from the Rājmahal or Gaur direction, i.e., viā Old Māldah, which, Ghulām Husain says, Firuz Shah used as his base. Ziya Barani also notes that when Firuz Shah, in his first expedition, retired from before Ekdālā, Ilyās Shah pursued him, thinking that the enemy was retreating to the 'City' (i.e., Pandua). Afif says Firuz Shah had decided to fall back 7 *kos* towards Delhi to tempt Ilyās Shah to come out of Ekdālā.
- (4) Firuz Shah, on his feigned retreat, had reached the bank of a river¹ 7 *kos* from Ekdālā, where the eddies had formed a ford, before he was overtaken by Ilyās Shah. The resulting battle ended in the flight of Ilyās Shah back to Ekdālā, and, after he had succeeded with difficulty in re-entering the *Fort*, Firuz Shah's forces occupied the adjoin-

¹ Ziya Barani does not mention where the battle took place except that it was on a deserted plain. The name of the river is not mentioned by Afif, who, like Ziya Barani, was a contemporary of the events he describes. It is only the authors of the later *Tarīkh-i-Mubārak Shāhī* (c. 1425 A.D.) and *Tabaqāt-i-Akbarī* (c. 1592 A.D.) who say the river was the Ganges, and Ghulām Husain repeated this statement.

ing town. The bodies of the 180,000 soldiers who are said to have fallen in the battle were scattered over the 14 miles of *plain* between the river and Ekdālā. Pandua was still further from Ekdālā, as, according to Afif, whose father certainly accompanied Firuz Shah in his second invasion of Bengal and, possibly, served in the first campaign as well, it was a halting place on the way back to Delhi from the site of the battle. Ziya Barani's statement that Ekdālā was 'near to Pandua' is therefore only relatively correct as from one writing at a distance.

- (5) The reference (in Afif's account of the second invasion of Bengal) to the repairs to an earthen bastion of the Fort of Sikandariya at Ekdālā that had collapsed (? into the moat) being supervised by Sikandar from the 'Eastern Roof' suggests that this attack on Ekdālā took place from the East. It is however also stated that the Islands of Ekdālā were 'surrounded' on this occasion by Firuz Shah's forces.
- (6) Ghulām Husain adds yet other piece of information, viz. :—that, during the first siege of Ekdālā, a Saint called Shaikh Rājā Biyabānī, in whom Ilyās Shah had great faith, died and that the King, in the guise of a mendicant, not only attended the Shaikh's funeral but also, on his way back, rode alone to see Firuz Shah and, without the latter recognising him, returned to Ekdālā. As 'Abid 'Alī Khān (*op. cit.*, p. 23) was able to identify the site of the Saint's tomb as being at the village of Almāspur, outside the N.E. corner of the perimeter walls of Pandua, and about 4 miles east of the subsequently erected Adīna Mosque, this shows that Ekdālā must have been within reasonably short riding distance of Almāspur and Pandua.
- (7) Afif says that Firuz Shah renamed Ekdālā Āzādpur, and Pandua Firūzābād. Little attention need be paid to this as the Muhammadan name of Pandua had already been Firūzābād for probably 50 years (being named after Shamsuddīn Firuz Shah, King of Bengal from 1301 to 1321 A.D.); while the name given to a place from a distance by an unsuccessful invader is hardly likely to have been adopted by the local people.
- (8) Finally, Ghulām Husain (on pp. 132 and 133 of Abdu-s-Salām's translation of the *Riyāzu-s-Salātin*) says Husain Shah, King of Bengal from

1495 to 1520 A.D., removed his seat of Government to Ekdālā. This shows that Ekdālā must have been a big place : *vide* also the reference in Afif's account of the first expedition to there having been then a town in connection with the Fort of Ekdālā. Ghulām Husain adds that for the maintenance of the rest-house of the Saint Nūr Qutbu-l-Ālam (of Pandua), Husain Shah endowed several villages and every year he used to come to Pandua for pilgrimage to the shrine of that Saint.

Let us now turn to the question of whether the Ekdālā of Westmacott agrees with the indications afforded by Muhammadan historians. Westmacott has given a few extracts from the reprint by Montgomery Martin of Buchanan Hamilton's account of the site but, as the latter contains the earliest information after a personal visit in 1808, it is desirable to quote his account in full (pp. 38 and 39 of the 1833 reprint). It should be noted that the *Thānā* was not then situated where it now is on the eastern bank of the Tungan, close to where the *Bādshāhī* road reaches the river, but at Bansihāri *Hāt* (or Jor-dighia), three miles to the N.N.E., near the twin tanks two miles to the east of Brajaballabhpur and a mile away from the western bank of the Tungan.

'There are several antiquities near the *Thānā*; at about half a mile south from this place is a small Hindu temple, called a *Mondir*, a work apparently of considerable antiquity. Its base is a quadrangular prism, about 20 feet high and 12 wide. Its summit is a pyramid of about the same height. This part of the building has been much ornamented with carved bricks, especially a kind of a escutcheon on each face, that possesses some degree of good taste. The artists have been ignorant of the method of constructing an arch; for the door is contracted above, to a point, by the horizontal rows of bricks, gradually encroaching on its width; not the smallest tradition remains concerning its founder, and the image has been removed.'

'At a little distance west from this *Mondir* begins a narrow elevated ridge of land, perhaps half a mile wide which extends west to the Beliya about two miles, and seems to me entirely artificial. It is everywhere full of small tanks, inequalities, and heaps, many of which consist almost entirely of bricks. The largest of these has been lately opened, probably in part to look for hidden treasure, and in part to procure bricks for building an office (*kuchery*), for collecting the rents, and this latter view has not been in vain. The building has probably been a temple, in form of a polygon. The outer wall is about four feet thick. At the western end of this elevated space are two tanks of considerable dimensions, which are almost

filled up, and entirely choked with weeds. The place is called Brojobollobhopur, and I have no doubt has been a considerable town: but no tradition remains.¹

About 1½ mile west from the Beliya, is a very large tank, called Melandighi,² which is nearly choked with weeds. The only tradition concerning it is that it was dug by a princess (*Rāni*), and that a miracle was necessary to procure water. About 1½ mile further west is Gordighi,² a tank, the water of which has extended about 600 yards N. and S. and 400 yards E. and W., and which of course is a Hindu work. A considerable portion of it has now so far filled up that it is cultivated for rice. About 1,200 yards west from this tank is another, called Alta Dighi,² which extends nearly to the same dimensions, but is placed [like the Malyan Dighi] with its greatest length from east to west, and therefore is a Muhammadan work. Between these two tanks are the ruins of Borohata, which are very large heaps or mounds, that consist in great measure of bricks. In many places the foundations of walls may be traced, and even the dimensions of the chambers. All these chambers are of a small size owing to which they may have resisted the attacks of time better than more spacious apartments. They are chiefly situated in the southern division of the town called Kutwari [? Kotwāli, or Kotbārī]. In this part are some small tanks that have evidently been entirely lined with brick. In the centre of the ruins are indubitable traces of a small square fort, which has been surrounded by a double wall of brick and an intermediate ditch. The ruin to the north of this fort is almost entirely without the trace of regular form, but the quantity of bricks which it contains is great. At its northern extremity is the monument of a Muhammadan *Pir*, Budul Dewan, which is built of brick: in its gate are two stones, but there is nothing about them to determine whether they have been brought by the founders, or taken from the ruins. There is no sort of tradition concerning the persons who either founded or destroyed these works.'

Apparently Buchanan Hamilton did not explore the even more interesting western area of the site along the Chirāmatī River³: but, when describing the neighbouring Division of

¹ It was in the Kutchery at Brajaballabhpur that we found an inscribed image of Nārāyana, dating, according to Babu Sarasi Kumar Saraswati, from the 12th century A.D. (*vide J.P.A.S.B.*, Vol. XXVIII, 1932, page 179). This may indicate the date of the temple referred to by Buchanan Hamilton.

² According to the Survey of India 1"=1 mile *mauza* map, the Garh Dighi (including its banks) measures 1,400 yards by 350 yards: the Malyan Dighi is only slightly smaller (1,400 × 250): while the Alta (or Sunka) Dighi measures 1,200 yards by 250 yards.

³ *Vide* Sarasi Babu's annexed second paper describing his visits to Daharol, Kachrā, Dehābandh, Patirāj, Ādyakhaṇḍa, Mahatur, Jagdallā, Mahendra, and Surohor. It is curious that Rennell does not seem to

Kaliyaganj which ran parallel to the Bongsihari Division on the west, he mentions (*op. cit.*, p. 37) that one of the only two brick houses in the whole of that Division, 'belonging to Guruprosad of Sorur [possibly Surohor¹], is a place very much becoming the residence of a gentleman. It is situated in a large piece of ground finely wooded and has been surrounded with a ditch and rampart of earth, now considered as unnecessary, and allowed to go to ruin. The family of the present proprietor has enjoyed the estate for some time'.

Dealing now in detail with the question as to how far the site agrees in topography with the data supplied by Muhammadan historians, the starting-off point in my further consideration of the problem—apart from the facts, first pointed out by Westmacott, that close to Bairhātṭā there is a large *mauza* named Ekdālā after which the whole adjacent area might have been called, and the existence of a Fort (*Qasbah*) occupying the space between the ends of the three great tanks—was the report of M. Tafazzul Hossain that the area is still surrounded by a ditch at least 15 miles in length, which was evidently supplied with water from the two adjacent Chirāmātī and Bāliya rivers between which most of the area stands. This is not all : for a further moat has been excavated round another large area two miles broad from North to South and stretching at least one mile eastward of the Bāliya, in which is included several *mauzas* : e.g., Brajaballabhpur, Bimanandapur (*alias* Bhaduria), Mangrail, Chandipur, etc. By this ingenious linking up of the two rivers and extension from the Bāliya, on the East, of another moat—possibly, in the beginning, a subsidiary stream of the Bāliya—there has been produced an area of not less than 23 square miles of human settlement completely surrounded by a moat, and divided by the Bāliya in such a way that the whole area might very well have been given the name ascribed by Afif to the place besieged by Firuz Shah, viz. : the 'Islands of Ekdālā'.

have heard of the Chirāmātī, but Buchanan Hamilton refers to it on p. 9 of his *Historical Description of Dinājpur* and says that after its junction with the Beliya, it falls into the Tangan. This is confirmed by the map of the then Subdivisions of the Dinājpur District, that faces p. 582 of Vol. II of Montgomery Martin's *Eastern India*, in which the Chirāmātī is shown bending *south-east* about eight miles south of Harirampur and, after joining the Beliya, the united stream falls into the Tangan about three miles north of Bumangola. Since Buchanan Hamilton's time, the amount of water in the Chirāmātī seems to have decreased, with the result that, instead of joining the Beliya, it now runs south and south-west till it ends at a point just inside the present Māldah District.

¹ This is the village (on the opposite side of the Chirāmātī to Mahendra) where Sarasi Babu obtained the unique Jain image of Rishabhanātha, as well as one of Ananta. It is two miles east of Baigungaon, the Rānī of which is said to have been the mother of Mahendra, and to have had residences in Surohor, Mahendra, and other villages in the vicinity.

The next point for consideration is the statement of Afif that for 14 miles to the south of Firuz Shah's camp before Ekdālā, there stretched a plain over which the defeated troops of Ilyās were chased, and mostly slain, after the battle. This is actually the case with the site we are considering for, south of Bairhātṭā, a practically level plain stretches as far as the *Qaṣbahs* (fortified posts) that are found on either side of Ghiyāsuddīn 'Iwaz's Devikoṭ—Lakhnauti road at the spot where it crosses the southern boundary of the present District of Dinājpur, and the distance—especially if measured from the old *Thānā* mentioned by Buchanan Hamilton, which may very reasonably be considered as the place from which the attack on Ekdālā was directed—is not very much less than the 7 *kos* mentioned by Afif. A memory of the actual battle may even be preserved in the name of the village Ranthail (Battle Field), which is situated about $1\frac{1}{2}$ miles to the south-west of the spot where the Bāliya leaves the southern moat, while possible references to Ilyās Shah may be found in the name of the *mauza* Chak Alāsh (*alias* Ilyāspur), one mile to the south of Ranthail, as well as in those of two *mauzas*, one called Shamspur (after Ilyās' regnal title Shamsuddīn) which is situated directly to the south of the remains of the stone bridge at Pātharghātā that formerly provided a crossing over the Bāliya for the *Bādshāhī* road, and which was protected on the north by two other *Qaṣbahs*: and the other, called Shamsia, immediately to the east of two *Qaṣbahs* that are found to the north and south of the present *Thānā* at Kushmundi.

As for the river which was being crossed by Firuz Shah's baggage when he was overtaken by Ilyās Shah, this was probably the Chirāmatī which, as mentioned previously (Note 3, pp. 159 and 160), followed, until at least the beginning of the last century, a south-easterly course some distance south of Ekdālā, and, after joining the Bāliya to the east of the *Bādshāhī* road, ultimately fell into the Tangan. In the absence of any mention of the Chirāmatī in Rennell's maps, there can be no absolute certainty of where it crossed the road, but from my own observations, it appears probable that the crossing was between the first mentioned group of *Qaṣbahs* and the raised site of Deotalā, a mile or so further along the road to the south in Māldah District. The road here runs across low land and is with difficulty kept in use. Moreover, if a fairly deep stream formerly existed at this spot, it would explain the existence of the *Qaṣbahs*, viz.: to prevent invaders from the south crossing to the northern bank.

Just one other point may be mentioned in corroboration of the identity of the Ekdālā of history with the Ekdālā near Bairhātṭā, and that is the existence, 18 miles to the north of Bairhātṭā, of a country residence of Husain Shah in a *mauza* called 'Chhota Parua', 3 or 4 miles N.E. from the present

Raiganj and a mile or so west of Hemtābād. Buchanan Hamilton makes the following notes on the place (*op. cit.*, pp. 35 and 36).

'About a mile and a half beyond this ruin [i.e., Mohes Rājā's palace, close to which is the mosque erected in 907 A.H. by Husain Shah's General, Rukn Khān, *vide* plate opposite p. 636 of the second volume of Montgomery Martin's *Eastern India*] is another, which has been surrounded by a brick wall, and is usually called the *Tukht* or throne of Hoseyn (*Padshah*) the King. The *tukht* consists of a quadrangular truncated pyramid, of about 20 feet in perpendicular height, and is composed of bricks heaped confusedly together. Intermixed with these are some large carved stones, evidently of the same style as those of Mohes Raja's house; but whether they have been brought from thence, or whether they are the ruins of a temple, that formerly may have been on the spot, I cannot say. On the summit of this pyramid is a considerable square area, in the centre of which a terrace has been raised about three feet high; and this has been regularly built with cement, and its sides have been ornamented with mouldings covered with plaster. It was here, it is said, that Hoseyn Shah sat, and beheld sports which were exhibited at the nuptials of his daughter. South from the pyramid are the ruins of a brick building, the roof of which has fallen in, but the walls are standing, and have been encrusted with carved bricks. The building is nearly square, with arched doors and windows, and is elevated on a brick terrace about five feet high. This is said to have been the house that was erected for the accommodation of the princess during the ceremony, after which the whole seems to have been given to religious men. The tombs of two saints (Weleat and Bahador Shahs) now occupy the throne of the King and many tombs of saints and fakirs surround the pyramid. There is a small endowment of land for supporting the fakir, who supplies the lamps burned at the tombs of the most distinguished of these personages. Between the two ruins many bricks are scattered on the fields, and a very wide road, with a ditch on each side, may be traced most of the way.'

The story current in the locality at the present time is rather different, viz.: that Husain Shah conquered Mohes Rājā, and then himself married the Rājā's daughter at the *Tukht*. As is well-known, Husain Shah's chief preoccupation, during the earlier years of his reign—or even earlier—was the extension of the boundaries of Bengal towards the north (Kamatapur, the present Kuch Bihar, which he captured from the last of the Khyen Kings, Nilāambar Rājā), and towards the north-east (Assam, which he claims to have conquered even on coins struck in the first year of his reign—899 A.H. or 1493 A.D.). Under these circumstances, it would be quite natural for him

to remove the seat of Government further north than Gaur (or even Pandua), and the existence of this 'Little Pandua' still further to the north not only supplies corroborative evidence in support of Ghulām Husain's story of Husain Shah's affection for Pandua, but also lends additional support to the identification of Husain Shah's capital with the Ekdālā at Bairhātā.

Before passing on to the next section of the paper, a summary may be given of what has actually been observed of topographical and archæological interest within the area which may now be called Ekdālā. As may be seen from the annexed plan (Pl. 4), the enquiries of M. Tafazzul Hossain have shown that the entire area (measuring at its greatest—East to West—length $6\frac{1}{2}$ miles, with varying breadths from North to South of 3, to as much as $6\frac{1}{2}$ miles) is surrounded by a moat upwards of 15 miles in length. The northern moat, which is shown turning south-west from the long *bil* that forms the boundary of the *mauza* of Namair on the south, may even formerly have been prolonged still further to the N.W. as I am informed by the Maulvi that there are traces of a depression, joining the N.W. corner of the *bil* to a small semi-circular *bil* at the north of *mauza* Debkhanda, though beyond this no trace remains of any junction of the last-named *bil* with the Chirāmatī. If this is correct, Debkhanda, Kachrā (where Śarasi Babu found an image of the Buddhist goddess Vāgīswarī, dating back to the 10th-11th century A.D.), and Ādyakhanda (from which came a 9th century image of Vishnu Trivikrama, now in the Rajshahi Museum), must have been included within the original boundaries of Ekdālā, as indeed, is suggested in the case of Ādyakhanda by its name, meaning the 'Original Settlement'. If these *mauzas* are included, the total area surrounded by the moat is 29 square miles whereas without them the area is 23 square miles, so that, in either case, the site is comparable in size with the cities of Pandua, and Gaur at its greatest (both about 25 square miles in area). Apart from the central citadel (*Qasbah*) referred to by Buchanan Hamilton, traces of another line of fortification—running east and west and pierced by an *Ādiduār* (Main Gate) have been found about a mile to the north of *Qasbah*, but the moat that presumably must once have existed to the north of this rampart has disappeared. Through this gate, and crossing at *Qasbah* another road intersecting the city from East to West, ran the main North and South road that branched off from the Lakhnauti-Devikoṭ road on the south at the group of *Qasbahs*, near which I have suggested Firuz Shah, in his strategic retreat from Ekdālā, halted in order to meet the onslaught of Ilyās Shah's army.

The name Ekdālā, which may only have been used in Moslem times to indicate the entire site—the pre-Moslem name being

probably Bairhātṭā—appears, as already noted, to have been derived from the large *mauza* of that name, close to the north-western end of Alta Dighi. Between it and Alta Dighi lies the much smaller *mauza* of Kāka Dighi where two of the oldest images in the whole site have been found (a Vishṇu of the 8th century and the small head of what was apparently a Yogin, dating from the 9th century A.D.). These (as well as the 8th century Danturā found by Sarasi Babu at Katāshan, in what appears to be a suburb of Ekdālā just outside the moat to the N.E. of Brajaballabhpur, and his 9th century Vishṇu found at Daharol, but probably brought to that place from Bairhātṭā) clearly indicate Hindu or Buddhist rule over the town from the beginning of Pāla times and possibly much earlier.¹ The image of latest date is the seated 13th century Sūryya from *Qasbah* described by Messrs. N. Chakravarti and S. K. Saraswati in their preceding paper. It is curious that no Muhammadan inscriptions have, up to now, been discovered, but two coins, obtained by M. Tafazzul Hossain at Bairhātṭā, were found to be, respectively, (a) a specimen of Muhammad bin Tughluq's forced currency—probably struck at Lakhnauti in 730 A.H. and (b) a coin of Husain Shah of Jaunpur, dated 865 A.H. If, as seems possible from the occurrence of 13th century images at *Qasbah*, Karanji (*vide* next section), and elsewhere in the neighbourhood, this area (though it is so close to the main *Bādshāhī* road to Devikoṭ) remained under Hindu rule subsequent to the time of Muhammad-i-Bakhtiyār Khilji, the occurrence of the former coin suggests that Bairhātṭā was probably incorporated in *Iqlim Lakhnauti* either at the time of the Delhi Emperor Ghiyāsuddīn Tughluq's invasion of Bengal in 724 A.H. to punish Ghiyāsuddīn Bahādur, or, at the latest, after Ghiyāsuddīn Bahādur's subsequent abortive rebellion, and death, in 728 A.H. when Qadar Khan was Governor of Lakhnauti under Muhammad Tughluq of Delhi (from 725 to 739 A.H.=1324-1338 A.D.). No images of later date than the end of the 13th century A.D. have been found in, or near, the area under consideration.

(C) KARANJI, THE REPUTED NATIVE VILLAGE OF RĀJĀ GANESH.

The story of Rājā Ganesh's successful ousting of the family of Ilyās Shah from the throne of Bengal at the beginning

¹ The local people say Bairhātṭā was the country residence of Virāt Rājā whose capital was Pandua and who kept his horses at Ghorāghāt on the Karatoya river. Buchanan Hamilton mentions several traditions about this Rājā, in whose time Varendra was called Matsya Deśa (Fish Country) and who was contemporary of Bhagadatta Rājā of Kāmrup. In order to safeguard his frontier from aggression from the N.E., Virāt Rājā kept a considerable part of his army near Ghorāghāt and higher

of the 15th century A.D. is one of the most remarkable episodes in the history of North-Eastern India. I have dealt at some length with this remarkable man and his descendants who ruled over the whole of Bengal between (practically) 1410 and 1442 (when the Ilyās Shah dynasty was restored in the person of Nāsiruddīn Mahmūd) in the 1930 Presidential Address to the Numismatic Society of India already referred to, but, to enable the reader to understand the exact relation of Rājā Ganesh to the Kings of the Ilyās Shah dynasty who preceded him, I will quote the chief paragraph of the account given in Buchanan Hamilton's Pandua MS. (*op. cit.*, pp. 23-24).

'Ghyasuddin . . . governed 16 years, and was succeeded by his son Syafuddin, who governed three years, and was succeeded by his slave Sahabuddin, who also governed three years. Then Gonēsh, a Hindu and Hakim of Dynwaj [Buchanan Hamilton adds 'perhaps a petty Hindu chief of Dinajpur'] seized the Government. Enraged at Shekh Bodor Islam, and his son Fyez Islam, who refused to give him the compliment due to the rank he had assumed, he put them to death. The saint Kotub Shah [Nūr Qutbu-l-Ālam of Pandua: died 1416 A.D.], who was still alive, disgusted at this action, wrote to a Sultan Ibrahim [of Jaampur, 1400-1440 A.D.], who, in compliance with the request, came from Rajmohal with an army, and encamped at Satra.¹ The Raja of Dynwaj was then terrified, and applied, in great penitence, to Kotub Shah, and obtained his forgiveness by making his son Goduson [? Jadu Sena], a Muhammadan. This convert assumed the government under the name of Jalaluddin, having been reconciled to the saint, and attacked Ibrahim Shah, grandfather of Hoseyn Shah, and having put him to death [?], seized on his government. The old man Gonēsh then confined his son, and seized on the whole kingdom. After having been four years in confinement, Jalaluddin recovered the government and compelled the Hindus to become Muhammedans; but many of them fled to Kamrup, that is to say the country beyond the Korotoya, and which was then probably independent. He governed seven years, and was succeeded by his son Ahmed Shah, who reigned three years. He was destroyed by two of his nobles, Sadi Khan and Nazar Khan, the latter of whom was made King [under the title

up the Karatoyā. Two forts, said to have belonged to this Rājā, were traced by Buchanan Hamilton, and also two others belonging, respectively, to his brother-in-law, Kichak, and Commander-in-Chief, Madan (*op. cit.*, pp. 19, 33, 48, and 59-64).

¹ Ghulām Husain (*trans. cit.*, p. 115) says Ibrāhīm Shah encamped at Firuzpur. I have already noted that there is still a Chatra *bil* close to Old Māldah (to the east of the *Bādshāhī* road to Rāniganj) and that this is possibly the southern remnant of a much larger *bil* that, as late as Rennell's time, spread much further northward to join the other Chatra *bil* close to the ruined bridge over the Tangan at Rāniganj.

Nāsiruddīn Mahmūd Shah], and erected many buildings at Gaur, to which he seems to have transferred the royal residence.'

Rājā Ganesh struck coins from Pāṇḍunagara, Chāṭgāon (Chittagong), and probably Sunārgāon, under the name of Danuja Marddana, 'Destroyer of the Demons', in 1416, 1417, and 1418, and was succeeded in 1418 by one Mahendra, who may have been a younger son. Very soon afterwards, however, the latter was ousted by (Jadu) Jalāluddīn, who continued on the throne of Bengal from 1419 to 1431 A.D.

Nothing is known for certain as to the exact place from which Rājā Ganesh came. Ghulām Husain calls him Rājā of Bhāturiā, by which perhaps is meant the area to the south-east of the Rajshahi Division comprising the present districts of Pabna, Rajshahi, and the eastern portion of Māldah: but if the name is a corruption of Bhādurīā, it may refer to any place called by this name, such as the Bhādurīā which is an alternative name for the *mauza* of Bimanandpur, lying within the moat of Ekdālā, on the opposite (western) side of the Bāliya to Brajaballabhpur. As for Buchanan Hamilton's suggestion that, by the Dynwaj of his MS., Dinājpur is referred to, it is certainly supported by a statement in the Vaishṇava work *Bālyalīlā Sūtra* (dealing with the pedigree and boyhood of the Vaishṇava saint Advaita, who was born in 1434 A.D.) that Advaita's grandfather, Nṛsinha Nāriāl, was invited from Sylhet by Rājā Ganesh to Dinājpur and that it was through Nṛsinha's advice as Minister to the Rājā that the latter became King of Gaur in 1407 A.D. As, however, the *Bālyalīlā Sūtra* (which purports to have been written by Kṛishṇa Dās—formerly Rājā Dibya Sinha of Laur in Sylhet—in 1487 A.D.) has only recently been published from a corrected copy of a defective MS., its statements cannot be unhesitatingly accepted, and, personally, I was rather inclined to regard *Dynwaj* as a corruption of the first portion of the regnal title of Rājā Ganesh—viz.: *Danuja* Marddana. Moreover, as Buchanan Hamilton himself points out (*op. cit.*, p. 27) it is difficult to understand how Dinājpur (which, as he says, signifies 'the Abode of Beggars', and was in his time a very poor place, only owing any importance it then possessed, first to the residence of the local Rājās, a very recent event, and secondly to the presence of the officers of Government) was the place from which Rājā Ganesh came. Finally, there is Col. Dalton's suggestion—now specially noteworthy in view of what was discovered during the tour under report—that the name Ganesh (spelt Kāns by Firishṭa and Ghulām Husain, and Kānsi in the *Ain-i-Akbari*) might be the same as Kōneh or Kōns—the nasalised pronunciation of the word Koch that one still hears in Dinājpur District.

I had already, 3 or 4 years back, disproved, by personal enquiries, the story in some Bengali paper that the seat of Rājā Ganesh was near Hemtābād—the story being due to a

confusion between the names of Rājā Ganesh and the Rājā Mohes previously mentioned ; and it was therefore with some scepticism that I heard from M. Tafazzul Hosain that a tradition prevailed at the village of Karanji, 5 miles south of the Katihar-Dinājpur-Parbatipur Railway Line, and 9 miles N.E. of Brajaballabhpur, that this was the home of Rājā Ganesh. As, however, there seemed to be some corroborative evidence, I took the opportunity of being in the vicinity last Christmas to pay the place a visit.

We left our camp at Bansihāri *Thānā* by car early in the morning and, on reaching the northern end of the great Mahipāl Dighi,¹ 10 miles from Bansihāri and about 18 miles S.W. from Dinājpur, we changed to the elephants that were waiting, and after going N.W. over a level plain for 4 or 5 miles, we began to reach the broken area of ground (typical of an ancient settlement) that constitutes the large *mauza* of Karanji. The first objects of interest met with were two mounds—one called *Bhenḍulā Dhipi* and the other *Haṭkholā* (or *Deulāni*) *Dhipi*. A quarter of a mile or less from the latter is a spot called Ganeshpārā which is one mass of large bricks, and, immediately to the west of this, is a half-ruined temple called *Sachikā Devī Thān* or *Kaṅs Rājār Pujār Thān*. A *melā* is held at Haṭkholā at the Full-Moon of Māgh (February), and the Hindus who attend—chiefly Poliyas—go on to worship at this shrine. The priest is a Mālākar, and he is assisted by (1) a *Bārikar* (water supplier), who washes the deities, and whose caste is TĀNTI-GANESH ; (2) a Drum-beater ; and (3) two *Bhaktas*—all of whom have 2 or 3 bighas of rent-free land from the Churamon Zemindar as payment for their services in the temple, and, in whose families, the offices are hereditary. We did not see either the Drum-beater or the two *Bhaktas*, but the Tānti-Ganesh was a person of strongly Mongoloid features and his water is not taken by the neighbouring Poliyas and Deshis, who, by their appearance, should be of the same stock.

Inside the temple were three or four images, the most interesting being a Trivikrama, with a late 13th century inscription which was read by Babu Sarasi Kumar Saraswati, the Government Research Assistant, attached to the Rajshahi Museum, who accompanied me, as meaning 'The God of the Poliyas'. The Pūjā that is performed in the temple is called *Kaṅser Brata*, and consists in repeating the *Mantra* quoted below five times, after which offerings of flowers, water, plantains, rice, curd, and *ghi* are made. The Pūjā is done once every week on Tuesdays at noon, without marking the images with vermilion. Marking with vermilion is only done at a special ceremony held at the end of each year.

¹ This Tank measures 1,320 yards by about 400 yards, and is therefore larger by 7 or 8 per cent. than the Garh Dighi of Bairhātā.

Mantra.

ঘঙ্গট মঙ্গট শীবের ঘরাণী বদে যাও
 বদে আইস বদে ঠাকুরাণী
 আমার হাতে লয় ফুলপানি ।

‘The wife of Śiva with veils
 (on her head), Bade Thākuraṇi.
 Go Bade and come Bade. She takes
 flowers and water from my hand.’

From the *mantra*, it may be inferred that the true name of the temple should be *Satikā Devī Thān*, as evidently the goddess addressed is the wife of Śiva and not Sachi, the wife of Indra.

Three miles to the west is a large *bil* called Kanchan *Bil*, and this is said to be the site of Rājā Mardanābha's capital, which sunk under the water owing to his being cursed by his illegitimate grandson Satya Pīr—the story being that Satya Pīr was conceived from the Rājā's daughter, Sandhyābatī, having smelt a flower, and that, in consequence, she was driven away from home when she was found to be with child. Houses and paved roads are seen in the *bil* when it dries up in the summer. There was some difference of opinion among the local people as to the caste of the Rājā, but they all agreed in his having been a great persecutor of Muhammadans. The whole story is given in a *pathi* called *Satyapīr*.

At Srirāmpur, close to Kanchan *bil* on the south, Sarasi Babu found a Kalyānasundara image of the 10th century A.D., while just to the north, in Krishnapur, east of the *bil*, there are two Vishṇu images of about the 12th century. In Marail, a village 2½ miles N.W. of Karanji, which has a N. × S. tank measuring 175 × 100 yards, Sarasi Babu came across a fine specimen of an image of Manasā, with a very interesting inscription showing that it was dedicated by a Rānī of the 10th or 11th century : while, on his return journey, he found at Nahet (Niat of the *Mauza* map) 2 miles south of Karanji, another Vishṇu with a short inscription dating from the 12th century. It is therefore certain that this area was in the possession of people professing the Hindu religion from the 10th to at least the end of the 13th century A.D., and it may also be inferred, from the Ganesh-pārā temple inscription (as Śarasi Babu has pointed out in his first paper), that at least at the end of this period, there was—as is still the case—a strong Koch element in the local population. At present Karanji contains no high caste Hindus, and is inhabited by Musalmans, Deshis, Poliyas, Bhuimālis, Vaishṇavas, and Nāpits, as well as a few families of Tānti-Ganeshs and *Bhaktas*.

From the point of view of clearing up the history of Rājā Ganesh, the facts are not complete enough for us to be absolutely certain as to their interpretation, but at all events they enable

a probable theory to be advanced regarding him. These facts may be briefly summarized as follows :—

1. The existence of a tradition among the local people at Karanjī, that Ganeshpārā (which is certainly an ancient site) was once the residence of a Rājā, whose name was either Ganesh, or Mardanābha (or both).

2. The existence in the immediate vicinity of Ganeshpārā of the temple called *Kaṁs Rājār Thān*.

3. The existence in this temple of an image of Trivikrama Vishṇu with a late 13th century inscription showing that it was the 'God of the Poliyas': with the inference already mentioned that then (as now) there was a strong Koch element in the local population.

4. The employment as washer of the images in this temple of a man of strongly Mongoloid features—belonging to the previously almost unknown caste of Tānti-Ganesh.

5. The use in the worship at this temple of a *mantra* called *Kaṁser Brata*.

6. The local story of the connection of Rājā Mardanābha with the city of Kanchan, now sunk under the water of the *bil* of that name.

One criticism made by a friend when reading the first draft of this paper was that the names Ganeś and Kaṁs could never be confused by any Bengali. The reply to this is (a) that apparently here at Karanjī they *have* been so confused, and (b) that among at least Bengali Muhammadan historians, Ganesh has actually become either Kāns or Kānsi. The explanation that I suggest is that the confusion has arisen owing to the Rājā (whose real name may quite possibly have been Ganeś) having been also, as Col. Dalton suggested, a *Koch*, a word which then (as now) was pronounced Kōns. If the Rājā was a Koch, this would also readily explain the complete failure, up to now, to link him up with any family of Varendra Brahmins (in spite of Babu Durga Chandra Sanyal's charming fairy-tale, making him out to be the chief Bhāduri of Satgara,—now a ruin 6 miles east of where the North Bengal Railway crosses the Atrai river), and the almost similar result in the case of the attempt to make the Rājā a Kāyastha.

I will conclude this paper by putting forward my own reading of the story of Rājā Ganesh, not as something proved, but merely as a possible theory that may lead to further fruitful discussion of the problem.

Ganesh was a Hindu Rājā of Koch descent whose original zamindari was at Karanjī. Possibly he had enrolled the local Kochs round his zamindari as *paiks* and trained them into a sufficiently useful militia to enable him to establish himself as a more than ordinarily powerful nobleman under Ghiyāsuddīn 'Azam Shah: or he may have established his authority over the Kochs by offering them—for a consideration—nominal admis-

sion into the Hindu caste system. As his influence at Court increased, he extended his zamindari southward to include the moated city of Ekdālā-Bairhāṭṭā, where he placed his son Mahendra as Governor, to gather in more Koch recruits from the north and draft them on, when trained, to increase his father's command at Pandua. By the beginning of the 15th century, Rājā Ganesh was playing the leading part in Bengali politics and has even been accused in the *Riṣṣāzu-s-Salāṭīn* of having treacherously killed Ghiyāsuddīn 'Azam, who died in 1410 A.D. Ghiyāsuddīn was succeeded by his son Saifuddīn Hamza Shah; but when the latter died after a reign of only two years and an adopted son of Saifuddīn, named Shihābuddīn Bāyazīd, was placed on the throne, Ganesh broke into open insurrection, and after slaying Shihābuddīn, began himself to rule over Bengal. The existence of coins of Alāuddīn Firuz, son of Shihābuddīn, indicates some degree of opposition to the Rājā, but, by the middle of 1414 A.D., Alāuddīn had disappeared, leaving Rājā Ganesh *de facto* King of Bengal, though apparently he did not then strike any coins. Conflict however with Nūr Qutbu-l-'Ālam, regarding the Rājā's oppression of Moslems and slaying of Moslem saints, led to the invasion of Bengal by Sultan Ibrāhīm Shah of Jaunpur, and the replacement of Rājā Ganesh by his converted son Jadu, under the Moslem regnal name of Jalāluddīn. This occurred, as may be gathered from the date of Jalāluddīn's first coinage, in 1415 A.D. Owing to Nūr Qutbu-l-'Ālam having died at the beginning of 1416 (7th *Dhī-l-Qa'dah* 818 A.H.: cf. Beveridge, *J.A.S.B.*, 1892, p. 124), Rājā Ganesh attempted to reconvert his son to Hinduism, but, failing in this, he himself seized the throne and struck coins in both 1416 and 1417 under the title of Danuja Marddana. Jalāluddīn however, though in prison, had not forgotten that he had been crowned King of Bengal by Nūr Qutbu-l-'Ālam, and, taking advantage of his father's increasing unpopularity, owing to the Rājā's fanatical oppression of Moslems, he successfully arranged with his friends outside for Rājā Ganesh's assassination. This probably took place towards the end of the year 1417. The Hindus were still strong enough in Bengal to appoint Jalāluddīn's brother Mahendra as successor to his father,—Mahendra's mother, the Rānī of Baigungaon, possibly taking some part in the way of supplying the necessary funds—and coins of both Jalāluddīn and Mahendra, struck in 1418, are known. After the end of this year, however, the coinage of Mahendra comes to an end, and henceforward (until his death in 1431) Jalāluddīn was evidently undisputed Lord of Bengal.

If this be the true story, what practically amounts to a Koch invasion of Bengal from the North (repeating the invasion of the Kambojas in the 10th century) could not have been looked upon with any favour by either Muhammadans or

Hindus, and if, as is probable, Jalāluddīn was content to rely on Bengal troops, he is not likely to have had much difficulty in persuading his subjects that he was determined to keep Bengal for the Bengalis, and in combining all classes in crushing his brother and driving the Koch levies back north into the territory of the Khyen Kings of Kamatapur. Memories of the struggle may even have supplied Husain Shah at the end of the 15th century with a valid pretext for invading the Khyen dominions, and, after the capture of Kamatapur by a ruse and the incorporation of Nīlāmbar's kingdom in Bengal, establishing Ekdālā as his seat of government, in preference to Pandua, with its sad memories to a Moslem of the ruthless murder of saints and the desecration of the Adina Mosque by its conversion, at Rājā Ganesh's order, into a zamindari office.

Note. —The references in Section B. of this paper to Ziya Barani's account of the first invasion of Bengal by Firuz Shah are to a translation of the relevant passages in the *Tarīkh-i-Firūz Shāhī* by Dr. Shahidullah, published as Appendix II to N. K. Bhattasali's *Coins and Chronology of the Early Independent Sultans of Bengal* (Heffer, 1922).

For Shams-i-Sirāj Afif's account of both invasions *vide* Elliot and Dowson's *History of India as told by its own Historians*, Vol. III, pp. 293–298 and 305–312.

Notes on Two Tours in the Districts of Māldah and Dinājpur.

By S. K. SARASWATI.

In the course of the last three months (December, 1932, and January and February, 1933) I have had the privilege of undertaking two tours through some ancient sites in the districts of Māldah and Dinājpur—one during the Christmas holidays in the company of Mr. H. E. Stapleton, Director of Public Instruction, Bengal, and the other at his instance during the following month. These tours, though necessarily hurried, furnished me with opportunities of visiting places of archaeological and historical interest and of examining rare and unique materials for the study of the antiquities of this part of Varendra.

These tours covered the north-eastern part of Māldah and the south-western of Dinājpur, roughly the stretch of land between the rivers Mahānandā and Punarbhavā (*Apunarbhavā* of Sanskrit texts), comprising the western half of ancient *Varendrī*, whose traditional boundaries are the Mahānandā on the west and Karatoyā on the east. They covered a distance of some 50 miles from Pandua to Dinājpur along the Māldah-Dinājpur road, which closely follows the alignment of the old embanked road of Ghiyāsuddīn from Gaur to Devikoṭ up to Bānshihārī, whence the old road turns eastward for Devikoṭ. The country that was traversed contains the remains of many ancient settlements with innumerable old tanks and ruins of forts, temples, and palaces, signifying the importance of the area in days gone by.

PANDUA.

The monuments that still survive, and the long line of mounds, strewn with bricks along both sides of the road throughout the whole length of the city, testify to the past glory of this old capital of Bengal, with its 20 miles of fortification around it. The principal remains lying, with a few exceptions, by the side of the Māldah-Dinājpur road, may be divided into those of Pandua and Adina, the distance between the two places being about two miles. Those at Pandua consist of the *Āstānahs* or *Dargāhs* of the Baishazāri and Shashhazāri endowments (known respectively as *Bari Dargāh* and *Chhoti Dargāh*), the Qutb Shāhi, or Golden, Mosque, and the Eklakhi Mausoleum. At Adina are the great Adina mosque and, at a distance of a mile to the east, the ruins of the palace at Sataisghara. So many writers have, again and again, dwelt

on these monuments that anything more than this mere enumeration may be thought superfluous.

What I want to lay special stress on is that Pandua, before the Muhammadans established their capital there, was a flourishing Hindu City, its earlier name, *Pāṇḍunagara*, being preserved in the coins of the Hindu kings, Danujamarddana-deva (Rājā Kaṁs) and Mahendra, issued in 1417 and 1418 A.D. Over 120 years ago, a local story was given to Dr. Buchanan-Hamilton that Pandua owed its foundation and name to a Rājā belonging to the Pāṇḍava family of Delhi, who came to, and remained in, Bengal for sufficient time to found a new city there.¹ This tradition of Pāṇḍava connection also extended to some ruins of the city, and we have the local stories of Sataisghara *diḡhi* being excavated by Arjuna, the third Pāṇḍava, and the building immediately to the south-east of the tank, being called *Pāṇḍap Rājā Dālān*.² Popular tradition in this country foists well-known names of mythology on different places of antiquity, thus endowing everything of old with a veil of mystic sanctity. Whatever the significance of these legendary tales, there is no doubt that they generally point to a remote antiquity of the places to which they are attached.

The excavation of 'Tanks as deep as the bottom of the sea' and the erection of 'Temples as high as mountain peaks'³ are the greatest merits of a Hindu aspiring to fame and renown in this world, and Paradise in the next; hence no man, who could afford it, was slow to acquire such merit by the excavation of tanks and the erection of temples. As such, they may be regarded as undying testimonies of a prosperous Hindu settlement where they occur. There is no dearth of tanks in and around Pandua. Practically the whole region is studded over with tanks, large and small, nearly all of which, with their greatest length from north to south, point to their Hindu origin. The existence of lofty temples may be incontestably proved by the numerous Hindu remains, both architectural and sculptural, which still exist at Pandua,—some lying loose, and others built into the Adina Masjid, the Eklakhi tomb, the buildings around the shrines of Nūr Qutb Alam and Shah Jalāl, and even into the arches of the old bridge on the road to the south of Pandua. Indeed, every structure of this royal city discloses Hindu materials in its construction, thus indicating that no earlier monument was spared. An examination of the stones used in

¹ Buchanan-Hamilton, *Dinajpur*, published by the Asiatic Society of Bengal, 1833, p. 48.

² Abid Ali Khan and Stapleton, *Memoirs of Gaur and Pandua*, p. 143.

³ Cf. *Toyāśuyair=jjaladhimūlagabhīrarabhair=Ddevālyai=cha kulabhūdharatulyakaksaiḥ | Vikhyātakīrtir=abhavat.....*

V. 7 Bangarh grant of Mahipāla,
Maitreya A. K., *Gauḍalekhamālā*, p. 94.

the construction of the Adina mosque (one of them bearing a Sanskrit inscription recording merely a name, *Indranātha*, in characters of the 9th century A.D.), and those lying about in heaps all around, reveals the fact, which no careful observer can deny, that most of them came from temples that once stood in the vicinity.

In many cases these Hindu materials were possibly not taken from distant edifices, but are still *in situ*. The plinth mouldings of the mosque have striking similarities with those of the *jaṅghā* of a Hindu temple. Their regular construction, each in its exact place, such as we find in Sikandar's chamber and in the base of the wall to the north of it, inclines the writer to endorse the opinion of Saiyad Ilahi Bakhsh, the author of the '*Khurshūd-i-Jahān Numā*', that on this very spot stood a Hindu temple¹ (left unfinished perhaps on the approach of the Muslims), which Sikandar Shah decided to convert into a mosque with the materials lying ready to his hand. The bigger plan of Sikandar necessitated, however, an extension of the plinth towards the south where some irregularities in construction occur, due probably to the ignorance of Sikandar's masons of Hindu architectural details.

A study of every Muslim settlement of some antiquity reveals the story how they all sprang up on and around earlier sites from which convenient materials were available to build and decorate structures of another age and of another faith. The ancient city of Devikot (*Koṭivarsha* of the Sanskrit inscriptions) was levelled to the ground in the early days of the Muslim rule to build up the Diw-kot or Dib-kot of the Muhammadan historian. Such was also the story of Gaur, of Mahāsthān, and practically of every Muhammadan establishment which we so frequently find perched on ancient mounds. Pandua was no exception to this general rule, and what little evidence we still have of this Hindu city calls up a vision of its ancient magnificence, with temples thronged with worshippers and tanks smiling with lotuses.

RAI-KHĀN DIGHI AND MOUNDS IN THE NEIGHBOURHOOD.

Some 5 miles due north-west of Pandua there is a large north and south tank, one of the largest in the region, named *Rai Khān Dighi*. A little to its west are two mounds, of which one is purely a heap of earth. The other, composed of bricks, has a moat all around, with only one way of approach and that in the direction of the earthen mound. These mounds were discovered in the course of the Air Survey of Māldah, and the annexed drawing (Pl. 5) is made from an air photograph by kind permission of Capt. Raynham. Local tradition connects

¹ Saiyad Ilahi Bakhsh, *J.A.S.B.*, 1895, p. 211.

the mounds with Dhanā and Manā, two robber brothers, who used these eminences to watch for their victims. Two similar mounds, with a similar story, known as *Lātu Pātur bhiṭā* also are said to be found on the other side of the river Mahānandā just beyond the Pirgunj bridge. It seems that these mounds represent a fortified post guarding the Pirgunj ferry and the military road running to the south-west.

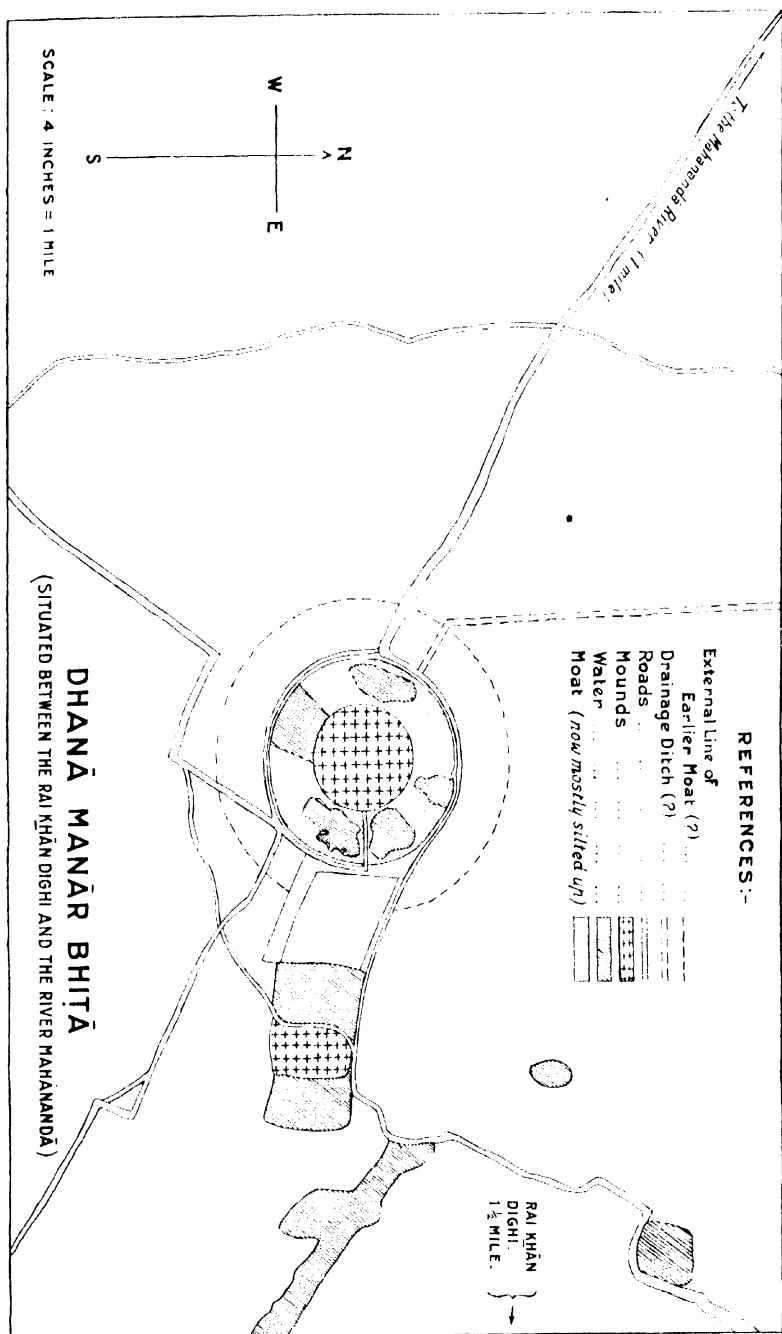
RĀNĪGARH.

At Rānīgarh or Rānīgunj, some 7 or 8 miles due east of Pandua, at a sharp southward bend of the river Tāngan (*vide* Pl. 3 in this volume), there exists a ruined masonry bridge over a former course of the river, connecting two sections of a ruined Bādshāhī road, one of which came from the east while the other ran southwards. Mr. Stapleton identifies this spot with the site of the battle between Sikandar and his rebellious son, Ghiyā-suddīn, in which the former lost his life. A *pucca* brick-on-edge road runs west-north-west from Rānīgunj and, passing through the *mauzās* of Barabari, Pathimari, Chhaighati, Parahar, and Homadighi, reaches, most probably in the end, the palace at Sataisghara. This road enters Pandua through a gate in the eastern wall at a place called Bilaikandar in *mauza* Parahar. Just inside, the road is in excellent preservation with a breadth of as much as 51 ft., and is well worth conservation by the Archaeological Department.

Traces of Hindu remains too are not wanting at Rānīgunj. In the market place may be seen several fragments, of which two deserve notice. The first represents the fragment of a pillar capital with 'āmalaka and foliage' design. It evidently belonged to some pre-Muhammadan structure that stood near by. From its similarity with the capital of the Bangarh pillar, now in the Dinājpur Rāj garden, in design and execution, it can be tentatively dated in the 10th century A.D. The other, a sadly mutilated deity in two fragments, shows the eight-handed goddess Durgā slaying the Buffalo Demon, issuing out of the body of the animal. The execution is vigorous and the actual fight—completed with the help of her two main hands—one seizing the demoā by his hair and the other thrusting the trident through his breast—is very finely portrayed. These and other similar stones reported from the vicinity, point to a Hindu past of considerable antiquity for Rānīgunj.

DEOTALĀ.

At Deotalā, 15 miles to the north of Pandua on the high road to Dinājpur, stands another shrine (*chillākhāna*) connected with the sacred name of the famous saint Shāh Jalāl Tabrizī, on account of which the place was also known as



Qaṣbah Tabrizābād, as can be gathered from the inscriptions found *in situ*¹. Deotalā (from the Sanskrit *Devasthala*—the abode of god) evidently implies an ancient Hindu settlement, a fact corroborated by the tanks scattered through the jungles and the Hindu remains found at the shrine. Cunningham found a fine image of Viṣṇu at the site² and several Hindu pillars are still to be seen within the enclosure. A door-frame to the east of the Chīlākḥāna shows a trident (the emblem of Śiva) in the centre of its lintel. Another lintel, with the figure of a Gaṇeśa on it, is partly embedded in a mound to the east of the road. Indeed, the whole site consists of undulating elevations, full of brickbats and potsherds, which, when excavated, may disclose interesting materials for the history of this 'abode of god'.

PĀTHARGHĀṬĀ.

About 8 miles to the north of Deotalā, Pātharghātā on the river Bāliyā, with huge blocks of stones scattered about on both the banks, and massive pillar foundations in the bed of the river, shows that here a stone bridge was thrown across the river to connect the two sections of the old road.

BANSHIHĀRĪ.

Four or five miles further on towards the north-east, we reach the right bank of the Tangan where, scattered over a considerable distance, are found many large blocks of stone — most of which show sculptured figures and decorations. Possibly they were carried down from Ekḍālā (*vide* next section) to throw another bridge over the Tangan, but the project remained unrealized for some causes not known. On the other side of the river is the *Thānā* of Banshihārī in the compound of which we noticed some interesting sculptures collected from the vicinity. The most interesting is an image of 'Lakṣmī-Nārāyaṇa', so rare that Mr. N. K. Bhattasali claims a Dacca specimen as the only one of its kind found in Bengal.³ In the present tour we were fortunate to find two such images, the second one being worshipped in a village shrine at Marail. The composition closely resembles the 'Umā-Maheśvara' group, so frequently found in Bengal. The lord 'Nārāyaṇa' is seated in *lalitāsana* (with his right leg pendant) on a lotus seat, with his consort seated on his left knee. His four hands hold, clockwise, *śaṅkha*, *padma*, *gaḍā*, and *chakra*, the last hand also encircling the body of 'Lakṣmī'

¹ For an account of Deotala and its inscriptions reference should be made to Abid Ali Khan and Stapleton, *op. cit.*, pp. 167–171.

² A.S.R., Vol. XV, p. 95 and pl. XXVII.

³ Bhattasali, N. K., *Iconography of Buddhist and Brahminical sculptures in the Dacca Museum*, p. 88 and pl. XXXIV.

whose right hand is placed round the neck of her lord, the left holding a lotus by the stalk.

Another image, that of 'Padmapāni Avalokiteśvara' discovered from a tank at Pundri, some nine miles south-west of Banshihārī, was presented to Mrs. H. E. Stapleton by the Banshihārī M.E. School Committee and has now been presented by her to the Museum of the Varendra Research Society, Rajshahi. The statue, which is in an excellent state of preservation, shows the god seated in *lalitāsana*, the right hand in the *varadamudrā* and the left resting on the thigh, holding a lotus by the stalk (*sanālapadma*). 'Amitābha,' his spiritual father, is seated in meditation just in front of his matted tiara (*jaṭāmukuta*). The base is quite plain but for the inscribed Mahāyāna creed, and this is also the case with the back slab, except for two *pūrīta* motifs on the throne back, and a miniature stupa on either side of the oval halo. The paucity of ornaments on the back slab, the rounded stela, the incised folds of the cloth, and the easy and graceful pose combined with a not-too-slender form enable us to ascribe the sculpture to the ninth century A.D., a date also substantiated by the characters of the inscription.

An image of 'Manasā', the popular Snake goddess of Bengal, shows the goddess seated in *lilāsana*, with a hood of seven cobras over her head. The left hand holds a snake while the right shows *Varada*. The breast band and the third eye on forehead are peculiarities worth noticing. The date seems to be circa 13th century A.D. (Plate 6, Fig. 3).

EKDĀLĀ.

Mr. Stapleton's study *in situ* has confirmed the theory of Mr. E. V. Westmacott¹ that the site of the city of Ekdālā, before which Ilyās Shah and Sikandar Shah, in the middle of the 14th century A.D., successfully beat off the attacks of the Emperor Firuz Shah of Delhi, and which, 150 years later, was the favourite residence of Husain Shah, should be identified with Bairhātṭā, between the rivers Chirāmatī and Bāliyā and enclosed on north and south by east and west canals joining the two rivers (*vide* Pl. 4 in this volume). The Hindu antiquity of the place is certain from the images, as well as the N × S tanks still to be found within this enclosure. The earliest image, so far known from the site, was found at the south-east corner of *Kāka dighi*, a north and south tank, where can be seen the plinth of a temple with a 'Linga' still *in situ* and numerous other fragments scattered about (Pl. 6, Fig. 1). The image in question, that of 'Vishṇu' (Pl. 7, Fig. 1) stands on a low plinth with four hands, all hanging down, the normal two hands with attributes, and the additional ones placed

¹ *J.A.S.B.*, 1874, p. 244-45.

on the heads of two attendants standing on either side. In style and execution it closely resembles the image of Vishṇu on the Bodhgaya stone dedicated in the 26th year of Dharmapāla,¹ on which account the present specimen may be dated c. 800 A.D. A small head (Pl. 6, Fig. 2), probably a little later in date, picked up from among the fragments on the site, is remarkable for the peaceful aspect of the eyes and face which indicates the head as that of a 'Yogin', a theory also substantiated by the *jaṭāmukuta*. The fragments range in date from the 10th to the 12th centuries A.D., and a seated image of 'Sūryya' (dating from the 13th century—*vide* previous paper) was collected by Mr. Stapleton two years back from Qaṣbah which is close by. All these point to Bairhāṭṭā as having been a flourishing Hindu settlement from the 8th to the 13th centuries A.D.

At Brajaballabhpur, a little to the east, there are preserved in the Kutchery of the local zamindar several images which are worth noticing. One represents the lord 'Nārāyaṇa' (*śaṅkha*, *padma*, *gadā*, and *chakra*, clockwise, in his four hands) with his usual attendants. The pedestal bears an inscription of two lines—

L. 1. *Lakshmī-Sarasvatīnāthaḥ* :

L. 2. *Paṇḍuṭha-devasya muktaye* :

The first line refers to the deity as the lord of 'Lakshmī' and 'Sarasvatī'. The second gives the name of the donor—*Paṇḍuṭha-deva*—for whose salvation the image was dedicated. The characters of the inscription, as well as the style of execution and decoration of the image, suggest a date in the 12th century A.D. A fragment of about the same date—representing a very spirited '*Gaḍa-simha*' (2' 6" in height), which served as a side decoration of an image—gives us an idea of the colossal size of the image to which it originally belonged.

MAHĪPĀL DIGHI.

This enormous tank, about a mile in length, by the side of the Māldah road about 18 miles south-west of Dinājpur, calls up a memory of Mahīpāla, the popular Pāla king, who recovered Varendra from the hands of usurpers about the end of the 10th century A.D. Nearby, we were told, is the village of *Pālsahar* (the city of the Pālas). On the eastern side of the dighi there are several images now used as stepping stones in the huts of non-Hindu inhabitants.

KARANJĪ.

About four or five miles to the North-west of *Mahīpāl dighi* is the large *mauzā* of Karanjī. The manuscript of a

¹ *A.S.I., A.R.*, 1908-09, p. 148, fig. 3.

poetical work, named ‘*Haricharita*’ by Chaturbhujā found in the Durbar Library, Nepal, states in the colophon that *Karanja*, the foremost village in *Varendrī*, inhabited by Brahmins, well-versed in the *Sāstras*, was granted to ‘*Svarnarekha*’ the best Brahmin, by King Dharmapāla.¹ The similarity of names is tempting, but there is grave doubt regarding the identification of Dharmapāla’s *Karanja* with this Karanji. So far as our present knowledge goes (*i.e.*, pending the excavation of two mounds in the village called *Bhendulā Dhipi* and *Haṭkholā Dhipi* the latter known also as *Deulāni*), there are no remains which can lead us back so far as the time of Dharmapāla. At present Karanji contains no high caste Hindus, being now inhabited by Poliyas, Deshis, Mussalmans, etc. and this seems to have been the case in earlier times too. A strong Poliya and Deshi element as far back as the 13th century may be inferred from an image of Trivikrama, which, according to the inscription on the pedestal, was dedicated by (or for) the Poliyas. Unfamiliar names in earlier inscriptions from near about also point to this element still earlier.

A quarter of a mile or less from the *Haṭkholā* is a spot called *Ganeśpārā*, to the west of which is a half ruined temple, known as *Sachikā Devī Thān* or *Kaṇs Rājār Pujār Thān* (place of worship of Rājā Kaṇs, *i.e.* Ganeś). *Ganeśpārā* and *Kaṇs Rājār Pujār Thān* lend support to the local tradition in the District of Dinājpur that Karanji was the native village of Rājā Ganeś. Inside this temple, among other images and fragments of images, is an image of Vishṇu (Trivikrama) with his usual attendants. The pedestal bears an inscription :

Palirayam Thakkurah |

which, if corrected to ‘*Palirayam Thakkurah*’, means the ‘God of the Palis’ (Poliyas), meaning thereby that the image was dedicated by (or for) the Poliyas. Palaographical reasons ascribe



the sculpture to the latter part of the 13th century A.D. (Pl. 7, Fig. 2).

¹ *Catalogue of palm-leaf and selected paper Mss. in the Durbar Library, Nepal*, MM. H. P. Sastri, p. 134.

The pedestal of an image of Viṣṇu from the village of Nahet close by bears an inscription which most probably reads :

Dānapati adet.

It seems that the correct form of 'adet' is 'adadāt' i.e. the donor gave it, or more likely 'adāt,' meaning the donor (himself) carved (it). The writing appears to date from the 12th century A.D.

MARAIL.

At Marail, about 2½ miles further to the north-west, there are several sculptures preserved and worshipped in the village shrine. The one, a 'Lakṣmī Nārāyaṇa' (mutilated), we have noticed previously. The other image of note, a 'Manasā', is an excellent example of the representation of the snake goddess in Bengal. The details correspond to those of the Bānshihārī specimen, but the execution is much earlier—probably 10th-11th century A.D.—a date which seems also to be corroborated by the inscription on the pedestal :

Bhaṭṭiṇī(nī) Maṭṭuvā |

which evidently gives the name of the donor. 'Bhaṭṭiṇī', according to *Amarakoṣa*, means an unanointed wife of a King (*akṛitābhishekā rājapatnī*). *Maṭṭuvā*, who dedicated the image, was thus a queen, though not the chief one, of an unnamed King.

An image of Viṣṇu (Trivikrama) collected from Ghanaśyāmpur near Nekmarddan by the Pandit of a school at Marail and, later on, presented by Maulvi Tafazzul Hossain (Sub-Inspector of Schools, Sadar, Dinājpur) to the Varendra Research Society, has an inscription at the base. It seems to read :

Vasathara ;

which most probably stands for Vāsudeva, a name of Viṣṇu.

ŚRIRĀMPUR.

Among the many sculptures lying at the village shrine of Śrīrāmpur, a mile or so to the west of Karanji, that of 'Kalyāṇa-sundara' or the image depicting the marriage of 'Śiva' and 'Pārvatī' is worth more than a passing notice (Pl. 7, Fig. 3). Here the god 'Śiva', with tiger skin and *jaṭāmukuta*, is seen actually taking the right hand (the *pāṇigrahaṇa* observance of the marriage) of the goddess 'Pārvatī', standing to his right. His other three hands hold a trident; a cup, and a rosary. Pārvatī's left hand hangs by her side. The *urddhalīṅga*, symbolising the celibate 'yogī', should also be noted. The figure with three visible heads on the pedestal, just behind the

fire, represent 'Brahmā' performing the nuptial *homa*. Śiva's bull and the donor couple also appear on the pedestal. From stylistic data the image may be dated in the 10th century A.D. An almost similar representation of the scene was found at Hili (Bogra) and is now preserved in the Dacca Sāhitya Pariṣat collection.¹ A big bust of Sūryya and a miniature image, representing a bearded figure with both hands held to the breast and hair tied in a peculiar knot over the head, are also worth mentioning.

KRISHṆAPUR.

The adjacent village of Kṛishṇapur, on the eastern side of the Kāñchan *bil*, represents an ancient settlement with brick-bats and potsherds strewn all over its surface. Large bricks (about 8" square) may be seen scattered about in and around the village and people say that they can be had in plenty by a little digging very near the surface. The village shrine, known as *Kālir Thān* (the place of the goddess Kālī), is a mound, with brick walls and staircase lined with stones still traceable in the south. The bricks here generally measure 8" square. A 'Linga' with 'Yonipīṭha' can still be seen at the top of the mound. Among other stones at the place may be mentioned two black-basalt images of 'Vishṇu' (c. twelfth century A.D.)—one of 'Nārāyaṇa' and the other of 'Trivikrama'.

DINĀJPUR.

Every antiquarian who visits Dinājpur dwells at length on the magnificent architectural pieces removed from Bangarh to the palace at Dinājpur by Mahārājā Rāmnāth. I will therefore refrain from any account of these, for which I refer to earlier writers,² and will only complete the description of the Rāj collection by mentioning an image lying uncared for under a mango tree to the south-west of the garden. It represents a rare iconographic specimen—'Danturā' a form of 'Chamuṇḍā'—the only other known image of this kind, from Atthasa (Burdwan), being preserved in the Museum of the Vangīya Sāhitya Pariṣat. Unfortunately I was unable to get the necessary permission to photograph this marvellously executed piece of sculpture. The emaciated goddess sits almost in three-quarter profile with her left knee nearly touching the ground and the right raised up. She has both of her hands placed on their corresponding knees, a peculiarity enjoined by the Śāstras.³ The back slab shows flames, and the pedestal,

¹ Bhattasali, N. K. *Op. cit.*, p. 123, and pl. XLVIII.

² A.S.I., A.R., 1921-22, p. 84, and 1925-26, pp. 113-114, and also V.R.S. *Monographs*, No. 4, pp. 29-30 and pls.

³ Cf. 'Danturākshemakārī *syād=*bhūmau jānukarā *sthitā*', *Agni Purāṇa*, 50, 27.

besides a horse and the image of the donor, an inscription of about the 11th century, partially legible :

Śrī Chandra Ka...

The rest is broken away.

Near the palace, in the house of Babu Krishna Kinkar Bhattacharyya, among other images fixed to the walls of his family shrine, is found a magnificent image of a dancing 'Ganeśa' (Pl. 7, Fig. 4). The image, which is a pleasing specimen of the art of the 12th century A.D., shows the eight-handed god dancing on the back of his vehicle, the rat, who also heartily enjoys the dance with upraised head and tail. Of special artistic importance is the rhythmic disposition of the normal two hands, the left outstretched pointing to the upraised leg, and the right held in *abhaya*.

The temple of Mahishamarddini at Dinājpur, according to an inscription fixed on its wall, was built by the queen of Rājā Ramānāth in the Śāka year, 1668. In the courtyard are two huge sandstone images of 'Varuṇa' and 'Yama', each on his vehicle and with his respective attributes, said to have been removed from Bangarh. The figures, though much worn, seem, from the point of view of style, to be of a fairly early date, and apparently once adorned some temple in the famous city of Bangarh as *Dikpālas*. Inside the temple there is an image of the Buddhist goddess 'Vāgīśvarī', with six of the eight hands showing various weapons, the normal right held in *Abhaya* and the corresponding left engaged in drawing out, with a pair of tongs, the tongue of the demon, shown in agony on the pedestal. A lion also appears on the pedestal as the vehicle of the goddess, and, most probably on this account, the image is being worshipped as 'Bhadrakālī'—a form of Durgā, who has also the lion as her vehicle. This shows how Buddhist images, when their real significance had been lost, were later on taken into Hindu shrines.

March 9th, 1933.

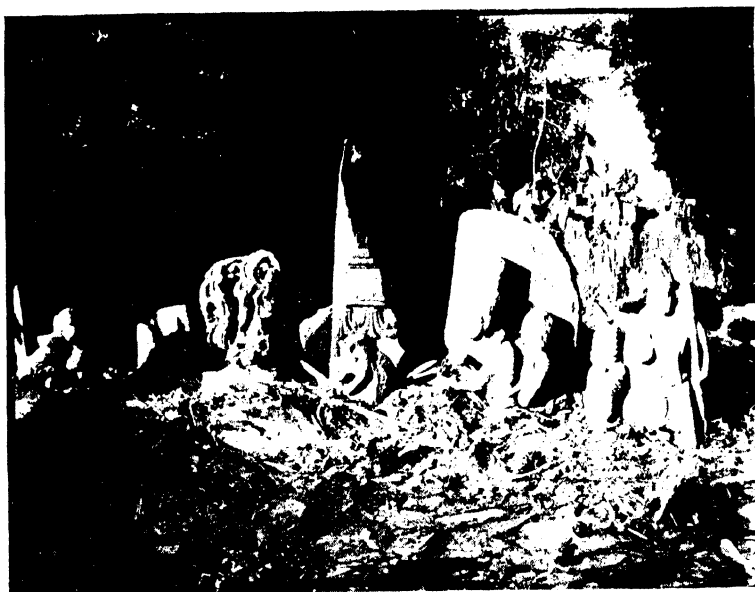


FIG. 1. Fragments—Kākadighi.



FIG. 2. Small head—Kākadighi.



FIG. 3. Manasā—Banshihārī.



FIG. 1. Vishnu—Kakadighi.



FIG. 2. Vishnu—Karanji.



FIG. 3. Kalyāṇa Sundara—
Śrīrāmpur.



FIG. 4. Dancing Ganeśa—
Dinājpur.

Notes on a Third Tour in the District of Dinājpur— chiefly along the Chirāmatī River.

By S. K. SARASWATI.

In March, 1933, I was deputed by the Director of Public Instruction, Bengal, to undertake a further trip down the little stream, Chirāmatī, which, after rising from a marsh, a little to the north of Kaliyaganj, runs sluggishly through the south-western part of Dinājpur to just inside the Māldah District. The trip, though only a very short one, proved eminently successful, as it revealed a further rich field for antiquarian and archæological studies that will be well worth fuller and more exhaustive exploration by experts. Besides proving that the present little stream was, in older days, an important one, fringed on both sides by flourishing settlements, the tour has brought to light, as we shall presently see, several rare images, of which a few are apparently unique.

DAHAROL (DAHARAN OF THE 1" TO 1 MILE MAUZĀ MAP).

I will begin with the small village of Daharol, which lies some 12 miles south of Kaliyaganj Railway Station and is just outside what was probably the N.-W. (Chirāmatī) end of the former Northern moat of the city of Ekdālā (*vide* Pl. 4 in this volume). One of the several interesting fragments, that are said to have been recovered while clearing a small half-silted-up tank in the village, is the lower portion of a sandstone door jamb, at the bottom of which is to be seen a *dvārapāla* (gate-keeper), who stands in a slightly *tribhaṅga* attitude with his weight resting on his left leg, the right being a little bent at the knee. His right hand, which is held to his breast, holds most probably an *akṣhamālā* (rosary), and the left, in *kaṭihasta* attitude (hand supported at the waist), a *daṇḍa* (staff).

Another fragment, the lower portion of an image, most probably belonged to an image of Chāmūṇḍā dancing upon Mahākālā. The fragment only shows a corpulent male figure lying on his back on the pedestal, with a *jaṭāmukuta* (matted tiara), and *trinetra* (third eye), and with the foot of another figure pressed on his breast. The slab at the back, as much at least as is preserved, shows traces of flames encircling the main deity. Five female figures, two on the pedestal and three below, most probably represent five other *mātrikās* or mothers of the Śākta pantheon. The right one on the pedestal, seated in *lalitāsana* on a lotus seat, with the right hand holding *kapāla* (cup) to her breast and the left having a *triśūla* (trident), may

be identified with Māheśvarī, the female energy of Śiva. The left one shows an emaciated goddess in the *arddhaparyāṅka* (one knee drawn up) posture, her right hand holding a *kapāla* and her left holding a trident, passing between the fore-arm and the upper arm, and touching the chin. She is most probably Kṛīṣodārī ('She of the Emaciated Stomach') who is distinguished from Chāmundā in the *Matsya Purāṇa*.¹ The three lower figures represent the three other mothers, the remaining two—most probably represented on the back slab—being lost. The extreme right one with *kapāla* and *śakti* (spear), may be identified with Kaumārī. The central figure, a corpulent female, is most probably Vārāhī, an inference supported by the boar-like appearance of her mutilated face. To the extreme left again appears Vaiṣṇavī, with a lotus in one of her hands.

In the house of Mr. Jogendra Chandra Guha of Daharol there are also several fragments, said to have been collected from Bairhātṭā, which is quite close by, being only four or five miles to the south-east. An image of Viṣṇu of the Trivikrama type shows the deity standing on a lotus on a plain pedestal with a female figure holding a flywhisk on either side. From the plainness of the pedestal and of the back slab, the flat modelling, and the flat-topped *kirita* (crown), the image can be dated from the earlier days of Pāla rule (9th century A.D.). Two Makara heads of grey sandstone, now placed by the owner on either side of the image, show the vigour which the gifted artist has been able to impart to this material. A bust of Chāmundā, and a small fragment exhibiting a spirited *Gajasimha* (Lion on Elephant), exhibit masterful execution. Among other fragments there is a slab representing the Nine Planets, with a figure of the pot-bellied Ganeśa standing to the extreme right.

KACHRĀ.

Of the numerous fragments of sculptures lying in the village of Kachrā—which is 1½ miles S.S.W. of Daharol, and just within the former N.-W. boundary moat of Ekdālā—one specimen (most probably the fragment of a panel), which I acquired for the Museum of the Varendra Research Society, Rajshahi, merits more than a passing notice. It shows a four-armed goddess modestly bejewelled, seated in *lalitāsana* on a lotus throne, borne on a *triratha* pedestal with figures of a lion and a demon, whose tongue she extracts with a pair of pincers, held in her lower left hand. The last feature identifies the image as that of the goddess Vāgiśvarī, representations of which are rather rare in North Bengal. The lower right hand is in

¹ *Matsya Purāṇa*, Chap. 261, verses 34–36.

varaḍa mudrā (granting boons), while the upper right and left hands grasp an *asi* (sword) and *khetaka* (shield). The head is mutilated. On either side there is a female attendant with a flywhisk, and the slab behind the three figures shows the back of a throne with a *prabhāmaṇḍala* (halo) behind the head of each figure. From stylistic evidence it may be dated in the latter part of the tenth century A.D., or the beginning of the 11th.

ESHMAIL.

Some 5 miles to the east of Daharol is the village of Eshmail where, in the village shrine (*gumbhīrāṭalā*), are preserved numerous sculptures both in and outside the small hut known as the *Thān*, i.e. the place, meaning no doubt the place of the god. The sculptures mostly represent the usual deities—Vishnu, Sūryya, Narasiṃha, Umā-Maheśvara, etc. The coating of milk, oil, and vermilion, which have accumulated through probably hundreds of years, prevented any inscriptions— if there be any—from being found. It was from here that I collected a rare iconographic specimen—Lakshmi-Nārāyaṇa (Pl. 8, Fig. 1)

of which I have noticed two other specimens in my report on the last two tours. The present image, of which the top of the slab at the back has disappeared, exactly corresponds, in general composition and distribution of attributes, to those noted in the last report. (For a *dhyaṇa*, which I have since come across, reference may be made to Hemādri's *Vṛatakhyaṇa*, Vol. I, p. 113.)

AMINPUR.

Some three miles further south-east, on the old N × S road running past the east gate of Ekdālā, the village of Aminpur presents the appearance of a dead city of by-gone ages, with its mounds and undulating areas, its half-silted-up tanks, and numerous fragments—both architectural and sculptural—lying about here and there throughout the village. The whole area is strewn over with brickbats and potsherds, and people say that a little digging yields bricks in enormous quantities. Of the numerous images to be found in this village, the two lying outside the cutchery compound are worthy of special mention. One is Chaturmukha Liṅga—a Liṅga with busts of Śiva carved on its four sides—which is very rarely met with; and the other is an image of Umā-Maheśvara, which shows a little difference from the numerous specimens of these images so frequently found in Bengal. Śiva, with *jaṭāmukuta*, is seen seated in *lalitāsana* on a lotus seat on the pedestal, below which are to be seen the respective vehicles of the god and the goddess with a worshipper in between. The god has two hands, as contrasted with four in the specimens usually met

with, a feature not uncanonical, as the *Matsya Purāṇa*¹ enjoins both four and two hands for the god in the Umā-Maheśvara images. The right hand is in the *vyākhyāna mudrā* (expounding pose), while the left is placed on the shoulders of his consort, who sits, with her face towards her lord, on a separate seat to the left, and not on the thigh of the god as she is usually represented. Her right hand rests on the left knee of Śiva, while the left, with the elbow on her left knee, holds something indistinct. On the back slab, in between the consorts, is seen Śiva's weapon, the trident, while two *Vidyādhara*s appear above the rounded stela. The images are not in amorous posture as appears to be the case with images where we find the lord touching the chin and breast of the goddess who is seated on his left thigh. It seems that the idea of the present image is to symbolise the dialogue found in the Tantras in which Śiva expounds various matters to the goddess, who listens to her lord with rapt attention.

KATĀSHAN.

Quite close to Āminpur on the south is the village of Katāshan which also shows traces of ancient settlement. It seems that the two villages of the present day formed in ancient times a single large and prosperous town (perhaps a suburb of Ekdālā). Of the numerous relics none calls for special mention except a sandstone image of Danturā (Pl. 8, Fig. 2), perhaps dating from as early as the eighth century A.D., which, as it was lying uncared for, I took away for presentation to the Museum of the Varendra Research Society, Rajshahi. The importance of this goddess I have already dwelt on in my last report in connection with another specimen, now lying uncared for in the Dinājpur Rāj garden. The special importance of the present image consists in its being by far the earliest of the three specimens that have up to now been found. The emaciated goddess, in accordance with the *Agni Purāṇa*, sits with her left knee pressed to the ground and the right raised. Her right hand is placed on the right knee, while the left hand is placed on the ground. The erect hair and bloodshot eyes add to the fierceness of her mien. In spite of the worn appearance of the stone, the specimen is a marvellously well-executed piece of sculpture.

DEHĀBANDH.

Returning again to the Chirāmatī, I next visited the village of Dehābandh, which lies a mile to the south-west of Kachrā. The village shrine is known as the *Saraswatītalā*, and here I found a sandstone Liṅgam of very rare iconographic character. It is encircled by four effigies of the Devī. These have *jaṭāmukuta*

¹ Chap. 260, verse 12.

(matted hair) and are seated cross-legged in *padmāsana* attitude, with clasped hands held up in adoration (*añjali mudrā*). The collection of the Varendra Research Society also possesses four similar specimens, but as the appropriate *dhyāna* is not yet forthcoming, we have tentatively described such specimens as Liṅgams with four Śaktis, the female figures around Śiva's symbol evidently standing for his female energies. The local cutchery also possesses two colossal images of Viṣṇu of exquisitely decorative workmanship, which date from the 12th century A.D., and also a huge pedestal of an image buried under the floor of the cutchery bungalow. The Naib was kind enough to dig it up for my inspection and an inscription was then revealed on one side. It reads *Arddhanārīśvara* (Arddhanārīśvara), signifying that the pedestal belonged to an image of Arddhanārīśvara, a rather rare iconographic specimen, showing Śiva and his consort merged into one body.

PATIRĀJ.

Just on the opposite bank of the Chirāmātī to Dehābandh is Patirāj, now a big village containing several mounds which tradition connects with Kīchak Rājā. In some of the mounds walls can still be traced, and heaps of bricks are found throughout the village. Several fragments of images and architectural stones are still to be found in the village, and numerous others are reported to be lying about 'in heaps' in the neighbouring jungles. A pedestal of an image of Viṣṇu (the upper portion lost) contains an inscription in characters of the 12th century A.D., reading *Dānap [a] ti Śrī Vāsudeva*, i.e. Vāsudeva the donor. Some of the fragments look quite unlike anything hitherto found, but their almost hopeless mutilation renders any satisfactory identification impossible.

ĀDYAKHAṆḌA.

Two miles south of Dehābandh on the eastern bank of the river and quite close to the road to Harirāmpur, is Ādyakhaṇḍa or Rāj Khaṇḍa, which has the appearance of a big ruined city, with mounds full of bricks, interspersed here and there with half-silted-up tanks. Some of these tanks seem to have been originally provided with pucca bathing ghats, remnants of which can still be traced. Raised areas full of bricks on the embankments of some of the tanks imply the former existence of temples on their banks. Architectural fragments of stone are also not wanting in the locality. Quite close to the road, and on the bank of a tank, was seen a pedestal of black stone of which, alas, the main image above the feet is gone. The breadth of the pedestal, about 4 feet, gives us an idea of the size of the image to which it belonged. The antiquity of the place (which lies immediately to the N.-W. of the large *mauzā* of Ekdālā

after which the city of Ekdālā was named, and which probably formed a suburb of the city) may be inferred from the fact that a miniature Vishṇu (Trivikrama), hailing from Ādyakhaṇḍa and now in the Museum of the Varendra Research Society, Rajshahi, may be dated approximately in the 9th century A.D. From the appearance of the ruins and from the relics still lying above the surface, it is practically certain that the site would well repay systematic excavation. Kāka dighi in Ekdālā, from which a still older image of the eighth century came (*vide* previous paper), is only two miles distant. It can even be suggested that Ādyakhaṇḍa (the original place) most probably represented the earliest settlement on the Chirāmatī which gradually extended to form the bigger city of Ekdālā.

MĀHĀTUR.

Māhātur, the next village to the south, also represents an ancient site, with brick-strewn mounds and stone fragments in all directions. Quite close by, the present N × S road shows traces of ancient brick-on-edge paving like that found at Pandua. Two magnificent images—one of twelve-handed Chāmunda dancing upon Mahākālā, and the other of a four-handed Kārttikeya riding a Mayūra,—in the collection of the Varendra Research Society, hail from this place. Both belong to the 12th century.

JAGDALLĀ.

At Jagdallā, a mile to the south of Māhātur, there are further evidences of ancient settlement. Just close to the road is a N × S tank, called *Bāghā Muzrā Dighi*, which has traces of a pucca bathing ghat on each of its four sides. The high embankments are strewn with bricks, and there are three small mounds to the east of the tank known to the people as *Deul* (temple). Bricks may be had in abundance in the mounds, and in one mound can be seen several huge architectural stones, most probably still in their respective places. A sandstone image of Chāmunda dancing upon Mahākālā is now being used as a washerman's stone at one of the ghats. The image presents several interesting features which we shall note later on in connection with a similar image in the Betnā Kālībārī.

MAHENDRA.

Next, to the south, comes the large *mauzā* of Mahendra, which, like Māhātur and Jagdallā, is still included within the moated perimeter of the city of Ekdālā. The numerous mounds and tanks, and innumerable bricks and stones that are to be seen all around, signify the former existence of a big and flourishing settlement, and a walk round the village will convince even a layman that the site was once part of a prosperous city, systematically planned with streets bifurcated by lanes, and

houses on either side. There are several mounds of which the most important is the gigantic *Godā Dhūm*, which towers above all the rest. Close by the road is a fairly big square tank known as *Yam Pukhur* (Yama's tank) which has high embankments full of stones and bricks on all of its four sides. Near the south-western corner of the tank there is a colossal image buried under the ground up to its chest. The portion above ground—to the top of the back slab—measures 3 feet approximately and this will give an idea of the gigantic size of the image. The tradition of Yama Rājā is widely current, and the *Godā Dhūm*, according to some, represents Yama Rājā's palace. The most prevalent tradition, however, is that all the neighbouring ruins—those at Adyakhanda, Jagdallā, Mahendra, and Surohor (mentioned later)—represent some of the hundred residences of the Rānī of Baigungaon, a place now full of jungle-clad ruins, so the report goes, on the opposite bank of the river. Mahendra is said to be one of her sons who had his residence here.

Of the images and fragments of images scattered about throughout the village and those in the village shrine, one, collected for the Museum of the Varendra Research Society, Rajshahi, represents a previously quite unknown iconographic specimen. The general composition of the image (Pl. 8, Fig. 3) is compatible with the image of Sūryya, so frequent in Bengal. There are the seven horses and the wheel of the chariot on the pedestal, above which are seen all his usual attendants—Daṇḍī, Piṅgala, his two Queens with Ushā and Pratyushā on either side, and Mahāśvetā and the Charioteer Aruṇa just in front. All the figures are booted, as is usual with an image of Sūryya. What makes the image so interesting is his *six hands*, of which the two main ones hold two lotuses by the stalks, just as is prescribed for an image of Sūryya. The other hands show respectively the *varada mudrā* (granting boons) and an *akṣhamālā* (rosary) to the right, and *abhaya mudrā* (granting security) and *kamaṇḍalu* (a pot) to the left. That the image is one connected with the solar pantheon, there can be no doubt. In most of the *dhypānas* Sūryya is assigned two hands, each holding a lotus, and such representations are met with in abundance in Bengal. A few *dhypānas* however ascribe four hands to him, the additional hands showing the *varada* and *abhaya mudrās*. But, nowhere do we find mentioned an image of Sūryya with six hands, nor with the *akṣhamālā* and the *kamaṇḍalu* as his attributes. The *Viśvakarmā Śāstra* gives a description of the twelve Ādityas, Sūryya himself being one of them (half way down the list). The present image seems to correspond to Dhātrī, the first Āditya, who is thus described in the *Viśvakarmā Śāstra* :

*Dakṣiṇe paṇṣkārī mālā kare vāme kamaṇḍaluh |
Padmābhyāṁ śobhita karū sā Dhātrī prathamā smṛitī* ¹

¹ Rao, *Elements of Hindu Iconography*, Vol. I, pt. 2, Appendix p. 88.

'An image of Dhātṛī should have four hands of which the main two should hold lotuses (exactly as in the images of Sūryya) the other right should have a *paushkarī mālā* and that on the left a *kamaṇḍalu*.' Mr. Rao translates '*paushkarī mālā*' as a lotus garland. It may also mean a garland of lotus seeds. Lotus seed being a well known *sāstric* material in the composition of a rosary, it is not unreasonable to assume that '*paushkarī mālā*' here means such a garland, i.e. *akṣhamālā*. So far our image exactly corresponds to the above description. The only discrepancy, viz. the two hands in addition to the prescribed four, need not seriously handicap us as the *vara* and the *abhaya mudrās*, which these two hands exhibit, are the general attributes of every deity. Our acquisition, therefore, in spite of its six hands, probably represents Dhātṛī, the first of the twelve Ādityas, and is perhaps the first iconographic treatment of such a deity, yet discovered.

SUROHOR.

Just on the opposite (western) bank of the Chirāmātī is the village of Surohor, traditionally connected, as I have already said, with the Rānī of Baigungaon, which, again, is two miles west of Surohor. The village shrine at Surohor contains numerous images and fragments. I will, however, take note only of two which prove to be the most interesting of all those found at the site, and which, I am glad to say, we have been able to acquire for the V.R.S. Museum.¹ The first in importance is an image of Rishabhanātha (Pl. 8, Fig. 4), the first of the twenty-four Jain Tirthaṅkaras. We have evidence of the existence of a flourishing centre of Jainism in North Bengal, though Jain relics are rather rare, the only avowedly Jain image previously found being one of the sixteenth Tirthaṅkara, Śāntinātha, hailing from Mandoil in the district of Rajshahi, and now preserved in the V.R.S. Museum, Rajshahi. The image under review shows a marvellously well executed piece of sculpture in magnificent preservation. The Jina (Tirthaṅkara, or Arhat) is seated cross-legged (*vajraparyāṅka*) on a *śimhāsana*, carried on a *pañcharatha* pedestal, which is divided into two sections, the upper occupied by a wheel flanked by two lions, while the lower has a bull (the distinctive *lāñchhana*, or identifying mark, of this Jina) and a kneeling worshipper. The two hands of the Jina are placed on the soles of his feet in *dhyaṇa mudrā*. He is completely nude. *Urṇā* (mole covered with hair, between the eye-brows), *uṣṇīṣha* (knob of matted hair), and the wheel marks on his palms and the soles of his feet, are among the auspicious marks (*mahāpuruṣa lakṣaṇa*). Behind the

¹ The Society's thanks are due to Messrs. Gopendra Prasad Sukul and Tara Prasad Sukul, Zamindars, for collecting and presenting the specimens to the Society's Museum.

head is the *prabhāmaṇḍala* borne on the top of the back of the throne. On either side is seen a male attendant, with a flywhisk, in slight *tribhaṅga*. Above, on each side, is seen a *vidyādhara* couple in the clouds carrying garlands. An umbrella covers the head of the Jina, on both sides of which are to be seen pairs of hands, sounding cymbals and showering flowers on his head. What make the image peculiarly interesting are the figures of the twenty-three other Jinas arranged in rows of niches, the uppermost ones ending in an *āmalaka* and finials, exactly as in the *śikharas* of the *Nāgara* (North Indian) temples. Each of these figures shows the hands in *dhyāna* pose and has the head canopied by an umbrella. Each has his distinctive *lāñchhana* marked on the pedestal. These symbols tally closely with the list given by Hemachandra in his *Abhidhāna Chintāmaṇi*¹ except in the following cases. The fifth Jina, Sumatinātha, shows an animal instead of a heron (*krauñcha*), the seventh, Supārśvanātha, a lotus instead of a *svastika*, and the fourteenth, Anantanātha, a boar instead of a falcon. These are but minor discrepancies; and taken as a whole, the image, as supplying us with the whole Jain iconography in a synthesis of stone, must be reckoned as an extremely valuable addition to our iconographic knowledge.

The other image shows us a unique type of Vishṇu (Pl. 9, Fig. 1)—in striking contrast to the two or three hackneyed types of Vishṇu that we are accustomed to in Bengal. The pedestal bears a twelfth century inscription recording the name of the donor, as well as those of his father and mother. The sculpture presents a deity, wearing a long garland reaching to the knees, with four hands bearing respectively *padma*, *gadā* (held horizontally on a lotus), *chakra* (held vertically on a lotus), and *śankha*. He can therefore be no other god than Vishṇu. In the manner of holding the attributes on lotuses this image corresponds to one other image in the V.R.S. Museum which hails from Kalandarpur in the district of Bogra. The specimen also resembles the Kalandarpur one in having no female attendants and in having a two-armed male figure seated in meditation above the head of Vishṇu, as well as a six-armed dancing male figure below the god's lotus seat. From these features it is evident, as has been shown by Mr. N. G. Majumdar in the case of the Kalandarpur image,² that the present specimen represents a conception of the Hindu Trinity, the seated

¹ *Vṛiṣho=gajo=śvach plavagaḥ krauñcho=bjaṁ svastikaḥ śaśi, Makaraḥ śrīvatsaḥ khadgī mahishaḥ sūkaras=tathā*]
Syeno=vajraṁ mṛigaś=chhāgo=nandiyāvarṇo=ghaṭo=pi cha,
Kūrmmo=nīlotpalaṁ śankhaḥ phaṇī sinho=rhatām dhvajāḥ ;

Abhidhāna Chintāmaṇi, Devādhideva Kāṇṭha, —verses 47-48.

² N. G. Majumdar, *A new type of Vishṇu from North Bengal, V.R.S. monographs, No. 3, pp. 15-17 and pls.*

figure at the top representing the god Brahmā and the dancing figure at the bottom the god Śiva. What however adds considerably to the interest of the present sculpture is the seven-hooded snake canopy over the head of Viṣṇu, which probably shows that Viṣṇu is conceived here as *Ananta*, or the Eternal, the hoods of the snake Ananta being utilized to impart to the god an idea of eternity.

HARIRĀMPUR.

Three or four miles further south, and two miles east of the Chirāmatī river, lies the big village of Harirāmpur. Several images are scattered about the village, but the most important collection appears in a shrine (*Kālībāri*) in the easternmost part of the village, bearing a separate name, that of Betnā. The shrine is a dilapidated brick temple with no pretensions to antiquity. The roof has tumbled down, and among the debris are seen several images which are still worshipped. A sandstone image of Chāmundā (Pl. 9, Fig. 3), partly buried in the debris, and most probably *in situ*, shows interesting features. The emaciated goddess sits in *lalitāsana* on what is evidently a corpse. She has ten hands, of which eight exhibit the usual weapons, and attributes, such as *kapāla*, corpse, *damaru* (rattle), *asi*, *khelaka*, *śūla*, fingers touching the lips, *ghaṇṭā* (bell), etc. But what makes the image so interesting is a severed human bust seen in the background, held by its two hands in the two uppermost hands of the goddess, exactly in the manner of the *gajacharmma* (elephant's skin), that we find so frequently in such images. This feature was also noticed in another image now being used as a washerman's stone in the *Bāghā Muzā Dighi* at Jagdallā. A miniature sculpture, again, shows the Nartteśvara Śiva, so rare in North Bengal, dancing on the bull, with ten hands—the main two held in rhythm with the dance, and the others grasping his different attributes.

The most interesting sculpture at Betnā is however the image of a female figure in *pratyāhṛita* pose (Pl. 9, Fig. 2), fighting with a host of pot-bellied Asuras, and with a prancing lion between her feet. Evidently the whole theme is an aspect of Chandikā fighting with the demons. The theme, quite different from the commonly-found representations of *Mahishāsurā vadha* (slaying of the Buffalo Demon), is wonderfully vigorous and dramatic. The goddess is fighting with the demons with the various weapons held in some of her thirty-two hands. The main pair hold a *śaṅkha* (conch), the blowing of which gives the signal for the fight. A second pair thrusts a *triśūla* (trident) into the belly of a demon, while another pair above the goddess' head hurls something, perhaps a *mushala* (pestle). The other hands exhibit various other weapons and attributes, such as *varada mudrā*, *sarpa* (snake), *damaru*, *śakti*, *karttri* (dagger), *tarjani* (pointing finger), *dhanush* (bow),

vāṇa (arrow), *asi*, *kheṭaka*, *chakra*, *śūla*, *pāśa* (noose), *ulpala* (lotus), *daṇḍa*, *paraśu* (axe), *gadā*, *ghaṇṭā*, *abhaya*, *vajra* (thunder-bolt), *darpaṇa* (mirror), etc. In spite of the rather large number of additional arms the image is wonderfully organic, a point which signifies concentrated energy, before which the demons are already seen to be retreating. A female figure on the proper right holds an umbrella over the head of the goddess, while on the top are shown representations of various other gods, such as Brahmā, Viṣṇu, Śiva, Sūryya, Gaṇeśa, etc. Of the fighting attendants of the goddess two are seen in the present sculpture, one at the top and the other on the pedestal, which also shows, besides lotus rosettes, the donor and his wife, as well as the representation of a bearded and emaciated male figure seated in *dhyāna* posture.

The execution of the sculpture is masterful in the extreme. The artist has put remarkable life and reality into the whole theme. The prancing lion, the *pratyāṭidha* (fighting) pose, the various weapons held not merely as qualifying attributes but being actually used as weapons of war—beautifully portray an actual fight going on between the goddess and the demons, who, unable to bear the combined and concentrated energy of the goddess, slowly retreat before her onslaught.

In this brief account of the trip, which I had the privilege of undertaking under the kind direction of Mr. Stapleton, I hope I have been able to show the importance of the locality visited, from the antiquarian as well as the archæological point of view. I will consider my labours fully repaid if this preliminary account induces scholars, better gifted and better equipped than myself, to take up the study of this important centre of an ancient civilization, which, hitherto, has been almost buried in oblivion.

Note.—For the villages mentioned in this paper, as well as those referred to in the paper dealing with the previous tours, reference may be made to the Map given in Mr. H. E. Stapleton's paper on 'Note on the Historical and Archæological results of a Tour in the Districts of Māldah and Dinājpur, December 24th–31st, 1932,' published in *J.P.A.S.B.*, Vol. XXVIII, 1932, Plate 4.

Plate No. XXVIII to illustrate “Punch-marked Coins from Afghanistan,” by Babu Rakhai Das Banerjee, will be issued with a subsequent number of the Journal.



FIG. 1. Lakshmi-Narāyaṇa from Eshmül.



FIG. 2. Dantūra from Kafāshan.



FIG. 3. Dhātṛī from Mahendra.



FIG. 4. Rishabhanātha from Surohor.

By courtesy of the Rajshahi Museum authorities.



FIG. 1. Vishnu with Snake canopy from Surohor.



FIG. 2. Chandikā with thirty-four hands in Betnā Kālībūrī.



FIG. 3. Chāmūṇḍā in Betnā Kālībūrī.

Mud-fishing in Lower Bengal.

BY SUNDER LAL HORA.

(Published with permission of the Director, Zoological Survey of India)

INTRODUCTION.

While carrying out investigations on the brackish waters in the neighbourhood of Calcutta and other places in Lower Bengal, a few interesting methods of fishing in semi-liquid mud have come under my observation. They show the great ingenuity that is displayed by the local people in catching fish, and, from a biological point of view, their study is very instructive as it reveals the great adaptability of several of the commoner species to highly adverse conditions of existence.

In studying these fisheries it has to be borne in mind that in Bengal, as well as in several other parts of India, there is a long rainy season extending from June to September (south-west monsoons) which alternates with a much longer dry season. Between October and May there are occasional showers, but they do not seem to be of much significance from the fisheries point of view. Another factor that deserves special notice is the presence of a large number of tidal creeks and estuaries that are to be found in Lower Bengal. These, as well as several canals, are embanked, and in this way vast tracts of land have been reclaimed for cultivation. In making these embankments earth is taken from the adjoining lands, thus a belt of low-lying land with a series of pools and puddles usually runs on either side of an embankment. The water in these pools is usually brackish, and the paddy that grows in these parts is of the special variety known as *Nuna Dhan* or the brackish-water rice. The straw of this paddy is said to be brackish in taste, and is not relished by cattle that are not used to eating it.

During the rainy season the entire country is inundated, and the low-lying parts revert to the original swampy condition, but with this difference that the water is now almost entirely fresh. With the commencement of the dry season in October-November, when the water begins to fall, the salinity increases gradually. But there can be no doubt that with the successive inundations more and more of the salts are being washed out of the soil and carried away by floods. At the same time good earth is brought to these parts in suspension from the neighbouring high lands and deposited as silt. The evidence of such a process is clearly afforded by the fact that in the Salt Lakes of

Calcutta the water is now only slightly brackish and that they are no longer under the influence of tides.

It is seen from the above that there are two important ecological factors which an animal association living in pools and puddles in Lower Bengal has to contend with, namely, the variation in the salinity of water due to floods and evaporation; and secondly the rapidly decreasing quantity and final disappearance of water during the dry season, and the consequent lack of facilities for aquatic respiration. When the water begins to dry up, the animals congregate into deeper and deeper portions of the fields and pools, and ultimately burrow in the soft mud to considerable depths and there aestivate till the return of more favourable conditions. On the return of the rainy season, these pits are the first to be filled with water, and the animals lying deep below their surface are awakened from their forced slumber. The methods of fisheries, as well as the peculiar behaviour of the fauna, are the direct outcome of the physical conditions referred to above. In the following pages I propose to describe some of the fishing methods, and to give lists of species obtained by these methods. Biological notes on the animals constituting the catch will be published later in the *Records of the Indian Museum*.

MUD-FISHING.

'An extremely common method of destruction of fish practised in every part of the country is by draining the fishery dry and then catching every fish in it by hand. This method is seen working in all small fisheries, railway cuttings, roadside drains, and small depressions of the ground. When the water cannot be drained it is laboriously bailed out.'¹ During rains when the country is flooded, a large number of fish leave rivers, lakes, and tanks and wander over paddy fields and other low-lying parts of the country. Most of the carps come out to breed in these shallow waters. When the water begins to fall, only a few are able to get back to deeper channels while the majority of these fish are stranded in small fisheries. Branches of trees are stuck in the pools to attract fish which resort to this improvised shelter for safety. The following methods of catching fish have been observed:—

On the 2nd of January, 1933, a boy was observed catching fish (plate 10, fig. 1) at Uttarbhag in the low-lying part of a paddy field. The greater part of the field was dry and hard, but an area of about 38 feet by 21 feet contained soft mud with small pools of water. The boy had been moving about in this slushy area, and in consequence the water was thick with mud and could almost be described as semi-liquid; it was

¹ De, *Rep. Fisheries Eastern Bengal and Assam*, p. 58 (1910).

very foul and was smelling strongly of sulphurated hydrogen. In catching the fish the boy first felt about with his hands in the mud. Sometimes the movement of the fish, especially when it came up to the surface to take a mouthful of air, disclosed its presence at a particular spot whence it was scooped. In those areas where the mud was somewhat firm and undisturbed the presence of certain species was betrayed by their burrows, from which they were very cleverly taken out by the boy. In the case of small species swimming in water, both hands were used to scoop them out from underneath. On my taking an interest in the boy's catch, which was kept in a small earthen pot, three other boys joined him (plate 10, fig. 2) and in about half-an-hour's time they brought to me a representative collection of animals from this puddle containing 353 specimens. The collection contained the following 15 species of fish, 4 species of prawns, and one species of crab :—

Fish.

1. *Aoria gulio* (Ham. Buch.).
2. *Barbus* (*Puntius*) *ticto* (Ham. Buch.).
3. *Barbus* (*Puntius*) *sophore* (Ham. Buch.).
4. *Esomus danricus* (Ham. Buch.).
5. *Xenentodon cancila* (Ham. Buch.).
6. *Panchax panchax* (Ham. Buch.).
7. *Aplocheilus melastigma* McClelland.
8. *Mastacembelus pancalus* (Ham. Buch.).
9. *Ophicephalus striatus* Bloch.
10. *Ophicephalus punctatus* Bloch.
11. *Anabas testudineus* Bl. and Schn.
12. *Nandus nandus* (Ham. Buch.).
13. *Ctenogobius alcocki* (Annandale).
14. *Glossogobius giuris* (Ham. Buch.).
15. *Pseudapocryptes lanceolatus* (Bl. and Schn.).

Prawns.

16. *Metapeneus monoceros* (Fabr.).
17. *Metapeneus brevicornis* (M.-Edw.).
18. *Caridina propinqua* de Man.
19. *Palaemon* (*Eupalaemon*) *lamerrei* M.-Edw.

Crab.

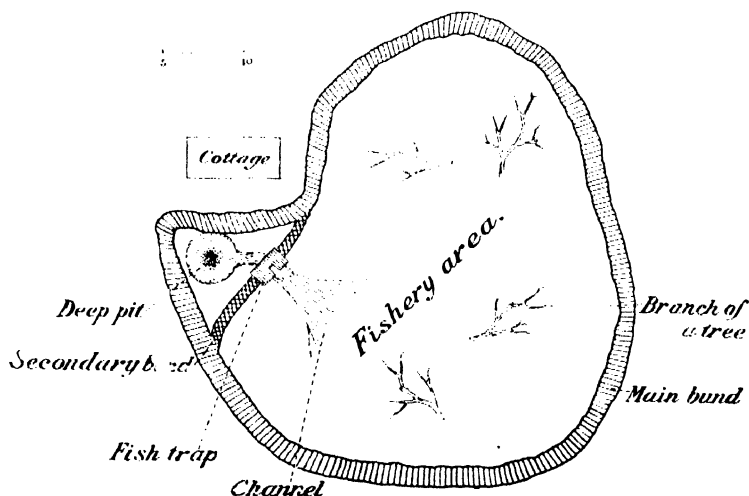
20. *Varuna literata* (Fabr.).

Of these species, the crab was the most abundant, and among the fish *Panchax* was the commonest. When the boys had finished catching fish and the water had been allowed to settle for some time, a larger number of small *Panchax* and *Barbus* were found swimming about in pools. Some of the species of fish, such as *Aoria gulio*, *Ophicephalus striatus*, *O. punctatus*, *Anabas testudineus*, *Pseudapocryptes lanceolatus*,

etc., are known to breathe air, but there is no doubt that the other species mentioned in the list must also be capable of making use of atmospheric air for respiration. The salinity of the water was 4.38 per mille, but unfortunately I did not take the temperature. The temperature of water in the shallow pools about 2 P.M. in the afternoon must be considerable. The fauna is thus adapted to live in very adverse conditions.

We were informed that three or four days after our visit this portion of the paddy field dried up altogether. When we visited the place again on the 8th of February the upper layer had become cracked and the surface was covered with a thin layer of salts, presumably derived either from the salts originally dissolved in the water or by a process of efflorescence from the soil. A few holes were observed at the surface and the place was dug up to a depth of about 4 feet. A couple of aestivating crabs were taken, but no fish was obtained. Probably fishes burrow to a much greater depth.

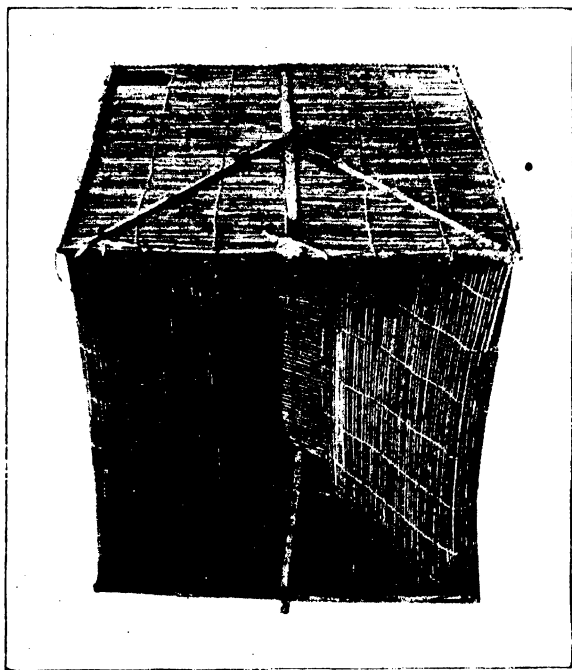
The most common and very successful method is by draining the fishery area dry. As one approaches Uttarbhag from Barnipur in January-February, a regular belt of small fisheries¹ (plate II, fig. I) is seen on the left-hand side in front of the houses along the road. The road runs on an embankment and in making it earth seems to have been dug out from the



TEXT-FIG. 1.—Diagrammatic representation of a small fishery area at Uttarbhag as it was being drained dry for fishing.

¹ A water sample taken from the channel on the 16th March, 1933, showed a salinity of 17.61 per mille. I believe at exceptionally high tides the water of the Piali Nadi flows into this channel. These waters are distinctly alkaline, the pH being from 8.2 to 8.4.

sides thus forming belts of low-lying lands which are now used for fishery purposes. In March the embankment was being repaired with the earth dug from the sides, thus rows of fairly deep pits had been formed. Each household seemed to have enclosed a portion of the channel by means of a fairly high *bund* as soon as the water began to fall. Branches of trees, etc., can be seen stuck in the middle of each enclosed area in order to prevent the fishery from being fished by means of a cast-net and to provide shelter for fishes. When the water falls sufficiently low, a small portion of the fishery is enclosed by a secondary *bund* (plate 11, fig. 2) in the middle of which a fish-



TEXT-FIG. 2.—The fish-trap usually used in mud-fishing.

trap is placed. A deep pit is dug in the small enclosed area and leading to it is a small channel from the main area. The water is then bailed out from the small pit with an enamelled soup-plate, and as this is done the water in the main area flows through the trap carrying the fish with it. A piece of old cloth is stretched, like a sail, over the secondary *bund* so as to prevent any fish from jumping over this obstruction. By this elaborate device all chances of fish getting into the pit are eliminated, so that the bailing of water can be done without running the risk of accidentally throwing out any fish in the process.

When the fishery is drained dry numerous small children work over the area (plate 11, fig. 3), collecting the fish and crabs that remain in the mud. They carry about an earthen pot with them to which they go on transferring their catch. In this process branches of trees are removed. In spite of all this, it seems that quite a number of fish escape attention. After fishing for the day, water is let in the fishery and a few days after the process of fishing is repeated. I was informed that in an area of about 25 feet square 4 to 5 lbs. of fish are collected. It may seem a poor return for the labour expended, but in such calculations it has to be borne in mind that after the paddy harvest these people have no work to do, and whatever little they can get out of the fishery is very helpful.

The majority of the fish caught were of a small size, not exceeding three inches in length. From a sample of the catch obtained on the 8th of February, the following species of fish and crustacea have been identified :—

Fish.

1. *Aoria gulio* (Ham. Buch.).
2. *Barbus (Puntius) sophore* (Ham. Buch.).
3. *Esomus danricus* (Ham. Buch.).
4. *Aplocheilus malastigma* McClelland.
5. *Ophicephalus striatus* Bloch.
6. *Ctenogobius alcocki* (Annandale).
7. *Glossogobius giuris* (Ham. Buch.).
8. *Ambassis ranga* (Ham. Buch.).

Prawns.

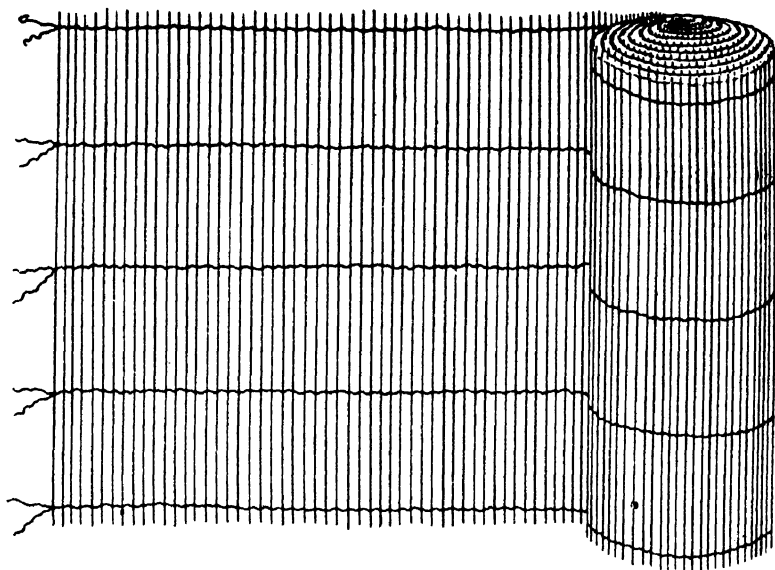
9. *Metapeneus brevicornis* (M.-Edw.).
10. *Palaemon (Eupalaemon) lamerrei* M.-Edw.

Crab.

11. *Varuna literata* (Fabr.).

The greater part of the catch consisted of *Barbus (Puntius) sophore*, and from among prawns the most abundant species was *Palaemon (Eupalaemon) lamerrei*.

When deeper and larger fisheries are to be drained, dugouts made from trunks of palm-trees are used for bailing out water (plate 10, fig. 3). The fishery is usually cut up into sections and each section is drained dry (plate 11, fig. 4) and the helpless fish are picked up from the mud. Early in March, this method of fishing was observed on both sides of the Diamond Harbour Road 3 to 4 miles beyond Behala. When an area is to be partitioned off by a *bund*, first of all a bamboo screen considerably higher than the level of the water is put up so as to prevent fish from jumping over to the main area. This precaution seems to be absolutely essential for I have seen *Barbus sophore*, a small fish of about 2 to 3 inches in size, jumping out of water



TEXT-FIG. 3.—The bamboo screen (modified, after De).

as high as 2 to 3 feet.¹ A usual feature of these fisheries is the presence of a large number of Brahmani kites, which feast on the leaping fish or on those that are left struggling on the drained fishery-bed.

¹ The leaping habits of *Barbus (Puntius) sophore* have become proverbial in the Bengali language. When a man of small means struts about in imitation of rich people, he is said to behave like a *sophori*. Similarly a tall-talker is characterized as a *sophori*. In Bengal a Sanskrit quotation is current as follows :—

Śapharī pharpharāyate. This is only the last quarter of a Sanskrit śloka attributed to Vararuci.

“अगाधजलमहारी विकारी न च रोहिणः ।

गण्डूष-जलमात्रेण शफरी फरफरायते ॥”

“The *Rohita* fish which remains in fathomless water does not become presumptuous but the small *Śapharī* madly jumps about already in finger-deep water.”

In Bengal there is a similar vernacular expression with reference to the *Kai* fish.

অল্প জলে কই বাহ ছড়্ ছড়্ করে ।

“The *Kai* fish will jump in little water.”

Further the leaping habits of larger carps such as *Catla*, *Mrigal*, and *Rohu*, when they are fished with large nets, are well known. *Barbus sophore*, though very poor in substance on account of its small size, is presumed to imitate larger carps in leaping about to great heights.

On enquiry it was found that *Barbus sophore* is the fish extensively collected by this method, though air-breathing fishes, such as *Ophicephalus*, *Anabas*, *Clarias*, *Saccobranchus*, etc., are also obtained in fair quantities. A number of other small species are also collected.

Sometimes the small, shallow fisheries are not drained but the fish are caught with the hands while resting on the bottom mud. In January several parties of women and girls were seen catching fish in pools and ponds along the short branch road to the Sonarpur Railway Station. By stooping in knee-deep water (plate II, fig. 4), the fish are searched for in small holes and pits at the bottom with the hands, and when caught they are put in an earthen pot that is kept floating close by. I was informed that certain fish are stupid enough not to move away from their retreats when touched with the hands. Crabs are also taken out from holes at the bottom. We examined the entire catch of a party of three persons and found in it representatives of three species of fish, viz. *Barbus (Puntius) sophore* (H.B.), *Nandus nandus* (H.B.), and *Glossogobius giuris* (H.B.), and one species of crab, *Potamon* sp. The specimens of fish obtained were of a somewhat larger size than those obtained by the processes of mud-fishing described above.

The above method of fishing is resorted to in clear water, but when the surface is covered with vegetation, as is the case with the ponds along the Diamond Harbour Road, small sieve-like baskets or nets are used for dragging out fish from mud and vegetation. The mesh of these baskets is so fine that even the smallest fish cannot escape through it.

EXPLANATIONS OF PLATES.

PLATE 10.

MUD-FISHING IN LOWER BENGAL.

Fig. 1. A boy catching fish at Uttarbhadra in the low-lying part of a paddy field. The small earthen pot by the side of the boy is used as a receptacle for the catch. Notice the muddy nature and the shallowness of the water and the stooping posture of the boy when feeling about with his hands in the mud for fish.

Fig. 2.—Four boys collecting fish in the same place as above. They obtained 353 specimens in about half-an-hour's time. Notice the shallowness of the water and its distribution into small pools separated by lumps of mud.

Fig. 3.—In draining larger fisheries, dugouts made from trunks of palm-trees are used for bailing out water. Notice the four men operating two dugouts. The two men near the bamboo-screen had just finished partitioning off a small area of the fishery. A portion of the extensive fishery area behind the bamboo-screen may also be noticed.

Fig. 4. —Water in a large fishery has to be bailed out from several sides, and in each attempt a small partitioned area is drained dry. Notice the dry area between the two *bunds* which are holding back water at a much higher level. Having finished bailing of water from the position

shown in Fig. 3, the dugouts are now to be removed from there and fixed in the position of the man on the extreme left of the picture. The tall bamboo-screen behind the fixed bailing mechanism may also be noticed.

PLATE II.

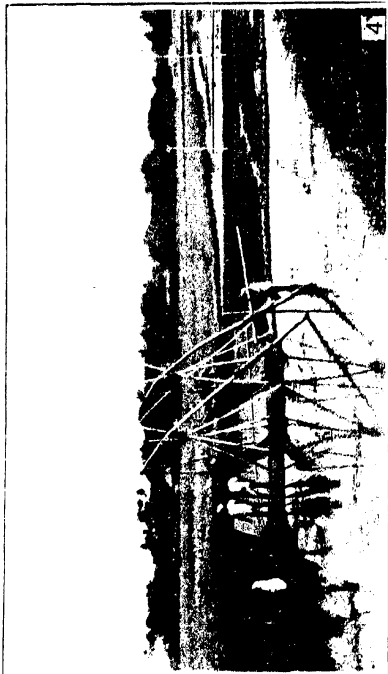
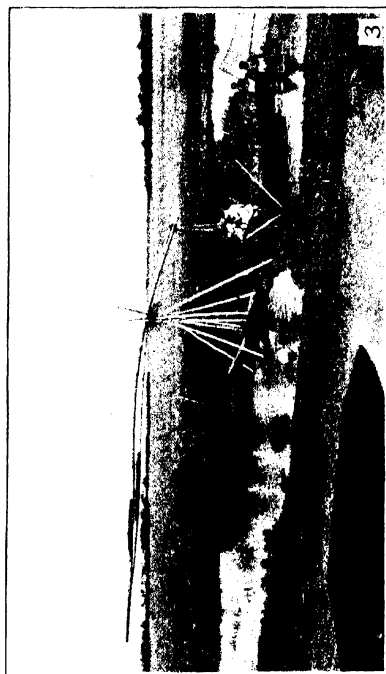
MUD-FISHING IN LOWER BENGAL.

Fig. 1.—A small enclosed fishery by the side of the road at Uttarbhag. Notice the branches of trees stuck in the middle of the fishery and a small area enclosed on its left-hand side for bailing out water.

Fig. 2.—The left-hand portion of the above fishery on a somewhat larger scale showing the nature of the secondary *bund*. Notice a piece of cloth stretched, like a sail, over the secondary *bund*. The woman is mending the *bund* and the man is resting for a while after bailing the water with the enamelled plate lying on the shore.

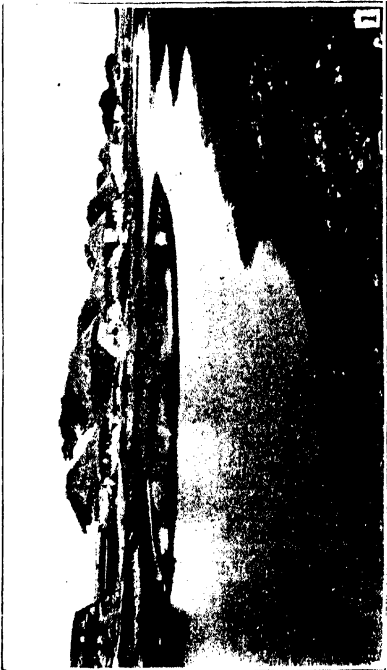
Fig. 3.—When a fishery is drained dry numerous small children work over the area, collecting fish and crabs that remain in the mud. Notice the earthen pot which the children carry about with them to put in their catch. The man on the other side of the bamboo-bridge bails out the water from a pit in which he is standing.

Fig. 4.—A party of one woman and two girls catching fish in a large pool near Kuriagachi (about a mile and a half from Sonarpur Railway Station) by stooping in water and searching for fish in small holes and pits at the bottom with the hands. Notice the large earthen pot that is kept floating close by for keeping the catch. (The woman in purdah is a Hindu widow and the two girls are her daughters).



Mud-fishing in Lower Bengal.

D. Bagchi, Photo.



The House of Gotarzes : a chapter of Parthian History in the Shahnameh.

By SIR J. C. COYAJEE.

In his great epic when touching all too briefly on the Parthian age, Firdausi tells us with a noble ingenuousness that he knew nothing of the history of the Parthians except a few royal names :

ايشان بجز نام نشيده ام نه در نامۀ خسروان ديده ام

(I have heard but their names ; and have not read of them in the book of 'Kings'). Nevertheless eminent historians are of opinion that a good deal of Parthian history can be traced in the Shahnameh mixed up with the annals of the Kaiyānian dynasty. It was impossible indeed to keep out the glorious deeds of five centuries of Parthian history from the national annals in spite of the great reluctance of the Sassanide editors and collectors of the country's traditions to chronicle the greatness of their hated predecessors. The result has been that we find Parthian kings and princes like Gudarz (Gotarzes), Gew and Karen introduced into the national epic as Knights of the round table of King Kaikhusrau and his predecessors, and that we get occasional glimpses of Parthian history and descriptions of individual Parthian exploits in the midst of what is the general history of quite other ages and dynasties. Eminent Iranian scholars like Marquardt, Noldeke and Herzfeld have hinted that it is possible to trace some Parthian history in the great epic of Firdausi, and have gone further so far as to say that Gudarz (one of the *heroes* of the Shahnameh) represents the Parthian King Gotarzes I (cf. Herzfeld, *Am Tor Von Asien*, pp. 46-47).

Nevertheless there has been no detailed study of the topic, nor has it been noticed that there is one 'chapter' of the Shahnameh, in which we find a *continuous narration of some decades of Parthian history*. That is the portion of the epic beginning with the murder of prince Farud and ending with the great fights of Iranians at Ladan and Hamawan and with Kamus the Kushanian, and others. It will be shown by a comparison of that part of the Shahnameh with narrations of Parthian history by classical writers, like Justin and Tacitus, that here at least Firdausi is following steadily and continuously the lines of actual Parthian history in the proper chronological sequence and order. Fortunately the incidents which stand out in Firdausi's narrative are some of the same

that are described by Tacitus in this connection and needless to say it is of supreme literary interest to compare the treatment of the same epic event by such masters as Tacitus and Firdausi. But apart from such striking comparisons I rest my case on the chronological parallelism between the events narrated in the epic and the facts of Parthian history.

THE CENTRAL THEME OF THIS PORTION OF THE SHAHNAMEH.

I invite attention to the fact that a single thread of narration runs through the whole portion of the Shahnameh which we are considering—and that central theme is the success and glorification of the house of Gudarz (Gotarzes, the Parthian king). Indeed I venture to suggest that this whole portion of the Persian epic is based upon the number of ballads celebrating the exploits of Gudarz (Gotarzes) and his family. The narration opens with the murder of the young and gifted prince Farud ; and the consequences of that tragedy are found to be immediately favourable to the hero Gudarz (Gotarzes) who is raised to the chief command in the army, as a consequence.

سبک طوس را باز گردان ز جای ز فرمان مگر دو وزن هیچ رای
سر افراز گو در ازان انجمن بهر کار باشد ترا رای زن

(Quickly send back Tusa ; the illustrious Gudarz should be thy guide in all operations.)

We might note further that while Gudarz thus gains largely by the murder of Farud, an attempt is made in the account to attribute the chief guilt of the murder to other noble men. Then follows the struggle between the son and grandson of Gudarz (Gotarzes) with Palashan and here again the house of Gudarz triumphs. The third phase is the fight with Tazhav ; and there also the whole credit is given to Bezan (a relation of Gudarz), who not only puts Tazhav to flight but deprives him of his beautiful wife Ispanoc : The bias on the side of Gudarz can be traced much further. For indeed all other Iranian heroes like Tusa and Fariburz are made to do nothing but commit blunders from the consequences of which they are saved by the intervention either of Gudarz or of some relation of his. Thus when Fariburz, the commander-in-chief, is running away from the battle, it is Gudarz and his party who save the situation as well as the national standard.

فریدرز باید کزان قلبگاه گویزان پیوید ز قلب سپاه
یکایک بدشمن سپردند جای ز گردان ایران بند کس بپای
چو گودرز کشواد از قلبگاه درفش فریدرز ز کاوس شاه

دید و بلان سپه را ندید کردار آتش دلش بر دمید
به بیژن چنین گفت گودرز پیر کز ایدر برو تیز با گز و تیر
بسوی فریبر ز برکش عنان پیدش من آراخته گویان

[Fariburz fled from the centre, and so did the Persians who left the field to the enemy. But when Gudarz saw this his heart was fired with rage; and the old man told Bezan to ride towards Fariburz and to bring away from him the standard of Gaweh.]

Nor is it enough that commanders like Tusa and Fariburz are made to run away while Gotarzes and his offspring are left to redeem the day. The hero Gustaham is rescued from certain death by one of the house of Gotarzes more than once. Then again in the formation of the line of battle it is the house of Gotarzes to which the right wing is assigned.

On these grounds it is submitted in this present paper that this portion of the *Shahnameh*—or rather of its predecessor the *Bastamaneh*—was based upon ballads recounting the deeds of the house of Gotarzes (Gudarz) which must have been very popular in Northern Persia and especially in Hyrcania. Indeed as late as the time of Firdausi we find such ballads relating to the house of Gotarzes still popularly sung and waiting to be taken up into histories. For the poets tell us that his account of the loves of Bezan (a grandson of Gotarzes) and Manizheh was based on a ballad sung to him by a lady of his own family. In earlier times such ballads narrating the exploits of the heroes of the line of Gotarzes must naturally have been much more common. For the topic of the house of Gotarzes was indeed one well-suited for the objects of the bard and the minstrels. The career of Gotarzes himself was such as to appeal to the minstrel and to the poet of Fortune's vicissitudes he had the most ample share—now ruling over all Iran and playing the part of a champion of Iranian patriotism against pretenders supported by Rome; at other times flying to remote Hyrcania and execrated as a tyrant. As a warrior he was great and Tacitus does justice at once to his 'terrible courage' (*Annals*, Book XII, 14) and to the skill with which he turned tables on his all but victorious foe Carenes by attacking him in the rear. He was obviously proud of his martial character, for on his coins he describes himself not only as King of Kings of the Arians but as 'Kalymenos' (champion and military factotum) of Artabanos. At least twice in his career he showed himself capable of highly chivalrous conduct—first when he divulged to his rival Vardanes I. a plot against the latter's life and again when he spared the life of his defeated rival Meherdates. He is also one of the few Parthian kings whose attachment and practice of the national religion has been

placed on record by history. Thus Tacitus speaks of the 'special worship of Hercules' by Gotarzes. By this deity is no doubt intended the angel Verethraghna who was often described in Greek records as Hercules Artagnes (cf. Tacitus, *Annals*, Book XII, 13).

It might be suggested further that these ballads can still be traced in their outlines in the epic of Firdausi. There is, to start with, the one relating to the tragedy of Kalat (i.e. the murder of Vardanes of Farud). That is followed by—though in noway connected with—the ballad about the fight between Bezan and Palashan which, as we shall attempt to show later, refers to the struggle between the successors of Gotarzes with Vologeses I and which very likely led to the separation of Hyrcania from Parthia. Then follows another poem integral in itself in which celebrates Bezan's exploits against Tazhav culminating in the capture of the latter's beautiful wife. So far there have been only descriptions of successful wars. But tragedy—almost unrelieved tragedy, one might say, supervenes. There, for example, is the pretty ballad about the death of the very young boy Bahram (of the family Gotarzes) who performs great exploits but who loses his life ultimately in attempting to gratify a boyish whim, when he returned to look for a favourite whip on the field of battle. Lastly the ballads turn to the disappearance of the house of Gotarzes when the heroes fell with their faces to the foe on the well-stricken fields of Poshan, Ladan, and Hamawan. In some of the most beautifully tragic and pathetic verses of the great epic we seem to hear the echoes of the wild accents of grief of the ballads which must have stirred the essentially nomadic and warlike heart of Parthia for centuries. There is room here only to mention a few instances of these accents of passionate grief. Thus,

دَمِي كَوَه از خون گودرزبان برنار خونین ببندد میان

(Such are the streams of blood of the descendants of Gotarzes descending the sides of the mountains, that they are like girdles tied to the mountain-side.)

در کاخ گودرز کبشوادگان تهی شد ز گردان و ازادگان
ستاره بر ایشان بنالد همی بیالیز گلبن بنالد همی

(The gate of Gudarz stands emptied of its heroes and warriors. Even the stars shed tears on them while in the gardens the roses refuse to bloom.)

The proofs of the hero worship with which Gotarzes and his family were regarded by the Parthians are not confined to the portion of the *Shahnameh* under our notice. (I say advisedly 'by the Parthians'—since the Sassanides were most

unlikely to go out of their way to do such honour to a Parthian prince.) For later in course of the epic we find that the exploits which, according to the Avesta, were performed by the warrior Tusa, are transferred to Gotarzes (Gudarz). Thus in verse 53 of the Aban Yasht we find the glory of vanquishing the swift sons of Vaisaka (i.e. the warriors Piran and Homan) ascribed to the warrior Tusa. But that honour is given in the Shahnameh to Gudarz (Gotarzes) and his son Gew. This sort of transfer in the face even of religious scriptures shows how strong the current of the national sentiment of Parthian ran in favour of the house of Gotarzes. One wonders whether this attributing of the exploit of Tusa to Gotarzes was due to a confusion between the Turanian name Vaisaka with the very similar name Vasaces which was borne by the commander of cavalry in the army of Vologeses I? This Vasaces is mentioned in Tacitus, *Annals*, Book XV, S. 14; and of course there was every probability of an encounter between him and Gotarzes.

GUDARZ (GOTARZES).

Since our hypothesis is that the portion of the Shahnameh which we are about to study embodies a series of ballads glorifying Gotarzes and his dynasty, we shall begin by comparing the main features of the career of Gudarz as described by the Shahnameh with what we know of the history of Gotarzes. We shall find that in spite of the mingling up of the Gotarzes ballads with the saga of the round table of Kaikhusrau, the great epic fairly reproduces the leading features of the life of the historical hero. Thus in the epic Gudarz is one of the leading heroes at the court of King Khusrau who had been brought back to ascend the throne from the wilds of Turan (Seythia). Similarly in history Gotarzes figures as the 'Kalymenos' (قهرمان) or chief warrior of King Artabanus III. It is well known that this Artabanus III had been compelled to retire to the wilds of Hyrcania; but later with the help of an army of the Dahae and Sakae he came back and reascended the throne of Iran. So in the epic, Kaikhusrau is brought to Iran by Gew, the son of Gudarz. In history it is 'Gotarzes Geopothros' who is the right hand man of Artabanus III. Further, as we shall see, in the epic it is Gudarz who is raised to the command of the Iranian army on the murder of Farud; while as a historical fact Gotarzes was raised to throne on the murder of Vardanes. We do not know whether Gotarzes had any hand in the formation of the conspiracy which led to the murder of Vardanes; but such a thing was not improbable; and the Shahnameh might be voicing the contemporary belief or suspicion when it records that while quite a number of nobles assailed the young King Farud (Vardanes), it was Bizan and Raham (both related to Gudarz) who actually killed him.

History tells us indeed that Gotarzes had at the time of this murder retired to Hyrcania but that would not prevent some of his partisans and relations from taking a hand in the tragedy at Kalat, especially as Gotarzes was sure to benefit by it.

FARUD AND VARDANES.

With this introduction we enter on somewhat detailed study of the narratives of the *Shahnameh* with which we are directly concerned and first we must take up the episode of Farud. The epic makes Farud a half-brother of King Kaikhusrau. When the latter sent an army against Turan, he had given express orders that the army should avoid the famous fortress Kalat in the north-west of Persia, which was occupied by Farud. But the general of the army, in a rebellious spirit, approaches the fortress. This leads to a struggle with Farud who is killed by the grandson of Gudarz but only after his arrows have accounted for a number of Iranian heroes. When Kaikhusrau heard of this tragedy of Kalat he supersedes the general and ultimately appoints Gudarz in his place (Warner III, 83). The one person who benefits by the murder of Farud is Gudarz: Thus we read in the *Shahnameh* :

سبک طوس را باز گردان ز جای ز فرمان مهر دو مزن هیچ رای
سر افراز گودرز ازان انجم بهر کار باشد تو را رای زن
ترا پیشرو گویو باشد بجنگ که بافر و بر زاست و جانگ پلنگ

(King Kaikhusrau's orders were to send back the general Tusa in disgrace; at the same time Gudarz is to be made the chief adviser in all operations, while his son Gew is to lead the van of the army.)

A comparison of the Farud of the epic and Vardanes of history shows close striking parallel. Both are young and warlike princes murdered in the prime of life. In character they were alike, for Vardanes aroused his nobles to conspiracy by his autocratic behaviour (Gutschmidt), while Farud too is represented as hot tempered and possesses a biting tongue. It is particularly interesting to note that the place where the tragedy was enacted was the same both according to the epic and the history. Farud is killed at Kalat in North-Western Persia: while Vardanes, when we last hear of him before his assassination, is conquering the Dahac and other 'intermediate tribes' in the north-west of Persia right up to the river Sind which Gutschmidt conjectures to be the Tejend (G. 126 Tacitus, *Annals*, XI, 10). Now we know from other sources that in these regions the most important movement of the day was the advance of the Tokharians in their victorious

career (Gutschmidt, *op. cit.*, p. 133). It is a very significant detail that while according to history Vardanes was advancing in the lands of races like the Dahae and Tokharians, Firdausi expressly calls the auxiliary of Farud, by the name of Tokhar. When we remember that Tokhar is not a man's name but only the name of a tribe, we can see that this is a detail very important for the identification of the prince, which tradition has luckily preserved for us. From the narrative in the *Shahnameh* we infer that when Vardanes (Farud) was assassinated, it was his Tokharian auxiliaries alone who stood by him—presumably the Persian nobles being all in the conspiracy against the prince (Tacitus, *Annals*, Book XI, 10); for while the epic supplies us with numerous names of the assailants of the prince, the only person who assisted him is called Tokhar. Both princes again were assassinated by disobedient Iranian nobles. It might also be added that while Farud was the half-brother of King Kaikhusrau, the Vardanes of history was the half-brother of King Gotarzes. For as Gutschmidt observes, while Vardanes was the son of Artabanus III, Gotarzes was in a sense an adopted son of the latter. Surely so many coincidences could not be fortuitous: and hence we can have no hesitation in identifying Farud with Vardanes. At any rate it cannot be seriously argued that there existed two Persian princes with very similar names indeed, who were both assassinated in their early youth by rebellious nobles; that both were killed in very nearly the same locality, both being supported by Tokharian auxiliaries against their Iranian assailants.

The murder of such a prince as Vardanes must have created a profound and indelible impression in Iran and it is no matter for surprise that the fact was registered alike by history, tradition, and poetry. The young prince of great promise who had won great victories alike in the West over Seleucia, and over Gotarzes and who had carried Parthian power to its greatest pitch in the North and West (Gutschmidt 124) was suddenly removed. The event must have attracted great attention in the countries of the West as well: for when the philosopher Philostratus was in want of a hero for his new *Cyropaedia*, a century and a half later he selected Phraotes or Vardanes to play that illustrious part. The analogy of the name Phraotes to the epic name of Farud is so great as to amount to an identification. It is an interesting speculation to account for the fact that Philostratus mentions and describes our hero Farud under two closely related and similar names—as Vardanes and again as Phraotes. In fact Philostratus (who knew Parthia and its history very well) actually makes Vardanes and Phraotes (which is obviously the same name as Farud) contemporary rulers—the former of Parthia and the latter of what we might call Parthian India. I might be allowed

to suggest that the explanation of this procedure was the old hatred of the Roman for his age-long rival—the Parthian ; and I emphasize the fact that the Emperor Caracalla, in whose time Philostratus was writing his historical romance, was particularly hostile to the Parthians and indeed deemed it perfectly legitimate to employ the most ‘detestable treachery’ (Sykes I, 386) in order to gain an advantage over them. Consequently though a courtly philosopher like Philostratus would have liked to write a new *Cyropaedia* for the benefit of Caracalla, yet it would have naturally seemed to him most impolitic to select a well-known King of Parthia to play the part of the new Cyrus. Very discreetly and prudently then this part was assigned to a fictitious ‘double’ of the Parthian king who was supposed to be a King of India. Nor was there anything violent in this supposition ; for about this period we witness the restoration of the Persian hegemony over nearer Asia and as far as the valley of the Indus (Huart 109). Indeed to this restoration of the Parthian hegemony the victories of Vardanes in Central Asia, which Tacitus refers to, must have contributed materially. For we learn from the great Roman historian that Vardanes (Farud) won tribute from peoples from whom no Arsacid had won it before and that he subdued the intermediate tribes as far as the river Sindes.

PALASHAN AND VOLOGESSES I AND II.

Classical historians do not supply us with the names of the sons or other descendants of Gotarzes. But the authority of the *Shahnameh* which assigns to him ‘eighty splendid sons’ is reinforced by other indications of a decisive character. Thus the historian Tabari mentions one who corresponds to Gew (Persian) and Wew (in Pahlavi). A grandson Bezan (Pehlevi Wezan) is mentioned by Firdausi, Tabari and many other Eastern historians. If I might be permitted a conjecture, the word Bezan was in its origin the name of a dynasty or family, since it only signifies ‘the son of Gew (or Wew)’. Indeed, it is only a Pahlavi translation of the name by which Gotarzes in his inscription describes himself—‘Geopothros (=the son of Gew)’.

As mentioned above, in classical history there is no express mention of the exploits of these descendants of Gotarzes. But it is significant that all through the reign of Vologeses I (who came to the throne soon after the death of Gotarzes), Hyrcania was trying to break away and to form an independent state and that it succeeded at last in achieving its object with the result that after a decade’s struggle Vologeses I had to acknowledge its independence by a treaty. We then call to mind that Hyrcania was in a sense identified with Gotarzes and his family, since both he and his grandfather used it as

a place of refuge whenever they were defeated and lost their hold over the rest of Iran. Indeed Rawlinson infers that by a treaty between Gotarzes and Vardanes I, Hyrcania has been assigned to the former and that it was on that condition that the former agreed to relinquish his claims to the Parthian crown in favour of the latter. Putting these facts together one can safely infer that the rebellion in Hyrcania represented a civil war between the family of Gotarzes (which had always represented Hyrcania) on the one hand and the house of Vologeses I on the other. This inference is corroborated by the narrative in the *Shahnameh* which records the struggle between Bezan and Palashan. As we have seen Bezan (in Pehlavi Wezan) was, at least to begin with, a generic name for the family of Gotarzes. The name Palashan, on the other hand, is the Persian form of the Parthian name Walagash (Vologeses) (cf. Justi's *Iranisches Namenbuch*, pp. 240 and 344). The plural form Palashan is significant, because several sovereigns of the same name and family followed each other. Thus we find that the *Shahnameh* and classical history corroborate each other and shed supplementary light on events. In the main the *Shahnameh* is found to be correct, though it symbolizes a ten years' civil war between the houses of Gotarzes and Vologeses I by a single combat in the desert and ends it equally summarily by the death of Palashan. For according to most authorities Vologeses I had a long career and died a natural death. But there are other authorities who believe that the long reign ascribed generally to Vologeses I covers two shorter royal careers—one of which might easily have terminated fatally in the course of the long and bitter civil war.

ISPANOE AND ZENOBIA.

The next Parthian episode in the *Shahnameh* is the defeat of Tazhav by Bezan. The latter pursues his opponent Tazhav who made a noble effort to take away and save his wife Ispanoe with him on his horse. After a gallant effort, however, he was compelled by circumstances to leave his wife to her fate. I beg leave to quote the episode of the flight of Tazhav as translated from the *Shahnameh* by the Warners :

He urged his steed toward the castle-gate,
Pursued thus by Bizhan at lightning speed,
And, when he heard the castle, Ispanwi
Came wailing with her face suffused with tears,
And cried out loudly to him : ' O Tazhav !
Where are thy host, thy mettle, and thy might
That thou shouldst turn thy back upon me thus,
And leave me in this castle shamefully ?
Give me a seat behind thee ; let me not
Be left inside the castle for the foe.'

The heart of proud Tazhav was set on fire,
 And his cheeks flamed. She mounted swift as wind
 Behind him on his steed and clasped his waist.
 He rushed along like dust with Ispanwi ;
 They made toward Turan. The charger sped
 Awhile till man and beast were both fordone,
 And then Tazhav addressed his handmaid, saying :—
 ‘ O my fair mate ! here is a grievous case !
 My charger is exhausted with this work,
 Foes are behind, in front is a ravine,
 And though we race Bizhan some distance yet
 Still they will have their will of us at last ;
 So as they are not enemies to thee
 Remain behind while I urge on my horse.’
 Then Ispanwi alighted from the steed :
 Tazhav’s face was all tears at losing her,
 Yet sped he on to reach Afrasiyab.

This is a beautiful piece of poetic description from the great epic. But the poetic incident finds such a wonderfully close parallel in an actual event from contemporary Parthian history recorded by Tacitus that identity of the two episodes becomes most probable. Let us remember, again, that inferentially from Firdausi’s account the incident occurred during the reign of Vologeses I, since its hero is again the same Bezan who was the foe of Palashan (Vologeses). According to Tacitus also (*Annals*, Book XII, 51), the event happened in the time of Vologeses I. The names of the husbands are indeed different ; Firdausi calls him by the name of Tazhav, while he is called Rhadamistus in Tacitus. On the other hand, the names of the heroines are not very different—being Zenobia in the *Annals* of Tacitus, and Ispanoe in the *Shahnameh*. It is difficult at least to believe that in the reign of the same prince Vologeses I, two incidents of so singular a character and remarkable in their resemblance to each other took place as are recorded in the two great authors. It is such a rare treat to compare the treatment of the same incident by masters like Firdausi and Tacitus that I quoted the translation of the relevant paragraph from Tacitus by Church and Brodribb :

‘ Rhadamistus had no means of escape but in the swiftness of the horse which bore him and his wife away. Pregnant as she was, she endured, somehow or other, out of fear of the enemy and love of her husband, the first part of the flight, but after a while, when she felt herself shaken by its continuous speed, she implored to be rescued by an honourable death from the shame of captivity. He at first embraced, cheered, and encouraged her, now admiring her heroism, now filled with a sickening apprehension at the idea of her being left to any man’s mercy. Finally, urged by the intensity of his love and familiarity

with dreadful deeds, he unsheathed his scymitar, and having stabbed her, dragged her to the bank of the Araxes and committed her to the stream, so that her very body might be swept away. Then in headlong flight he hurried to Iberia, his ancestral kingdom. Zenobia meanwhile (this was her name), as she yet breathed and showed signs of life on the calm water at the river's edge, was perceived by some shepherds, who inferring from her noble appearance that she was no base-born woman, bound up her wound and applied to it their rustic remedies. As soon as they knew her name and her adventure, they conveyed her to the city of Artaxata, whence she was conducted at the public charge to Tiridates, who received her kindly and treated her as a royal person.'

THE BALLAD OF BEZAN AND MENIZEH.

A critic might well raise the objection that according to Tacitus the heroine Zenobia as well as her husband Rhadamistus belonged to Armenia; that the incident of the 'flight of the two occurred in Armenia, and finally that we have so far given no proof that the house of Gotarzes was in any way connected with that country. To these queries the reply might be made that abundant proof can be furnished from the *Shahnameh* and other sources of the part taken by Bezan (descendants of Gew, the house of Gotarzes) in the affairs of Armenia. In the first place reference might be made to the ballad of Bezan and Menizeh incorporated in the *Shahnameh*. Following the usual convention in that epic (in which Afrasyab is made the general, and sole adversary of all Knights of the round table) Menizeh is represented as the daughter of that Turanian king. As a matter of fact, as Justi has shown, Menizeh is the feminine form of the Parthian name Manec. Now a Parthian of that name held command for the Parthian king in Armenia and defeated the famous Roman general Corbulo (cf. Tacitus, *Annals*, Book XV, 2-4). What is again most important for our purpose and for the history of the house of Gotarzes is that this noble man Manec lived in the time of King Vologeses I and it was this king who carried on (what Tacitus calls) 'the old feud' with the house of Gotarzes. Here is a reference which might be said to give something like a date to the happenings which have been poetized in the ballad of Bezan and Menizeh. The presence of a noble of the name of Manec in Armenia, and the existence of constant civil wars among Parthian nobles sets just the scene required for such occurrences as are sung in the ballad. There is nothing improbable in the son of a Parthian Montague (Bezan) falling in love with the daughter of a Capulet of the same race (Manec, the father of the fair Menizeh) and of being taught in his hours of imprisonment that 'love is too rough, too rude, too

boisterous'. There is also the ancient tradition which lingered in Armenia that Bezan (of the house of Gotarzes) was imprisoned for his love of Menizeh in a cave at the place called Phyatkarán in that country—a tradition of which we learn from Mose's Geography. Nor does even this exhaust the proof of the activity of Bezan in Armenia. The *Shahnameh* begins the episode by observing that King Kaikhusrau had deputed Bezan to relieve the people of Arman (Armenians) from the inroads of wild boars. Moreover, the companion of Bezan's adventures in the ballad bears the name of Gurgin (Warkaina in Pehlevi). Now a reference to this name in Justi's *Namenbuch* will show how often it was borne by princes and nobles of old Iberia and Armenia. Indeed it is very remarkable how names of the house of Gotarzes—particularly those of Gew, Gurazeh, and Bezan have lingered among the noble houses of Georgia and Iberia almost up to our own days.

These very names were used, even in South Russia for some centuries. I emphasize this in order to show the general and long continued popularity of the legends of the house of Gotarzes in Northern Iran and adjacent countries like Armenia, since it is popular legends which are often the sources of current names.

DECLINE OF THE HOUSE OF GOTARZES.

That national tradition and minstrelsy which extolled so well the exploits of the house of Gotarzes did not fail to gild its abrupt decline, even though classical history has failed to give us any direct description of it. Nevertheless, we get some hints even from Roman historians of great nomadic movements which were bound to prove very prejudicial to the house of Gotarzes which ruled over Hyrcania. It is very significant that the house of Gotarzes suddenly disappears from view in Parthian history as left to us by classical historians, nor are we left quite without any clue as to the cause of this catastrophe. In the reign of Vologeses I, Parthia, Media, and Armenia as well as the Near East were overrun by nomads like the Alani from the East coast of the Caspian and by the Kushans who were driving the Tokharians before them (Gutschmidt, pp. 133-37, Rawlinson *Parthia*, pp. 294-6, Sykes, Vol. I, p. 379). As regards the Alani it has been supposed that their intervention was invited by the Hyrcanians themselves. But the Kushan and other nomadic invasions were of a different character, and it seems most probable that the house of Gotarzes suffered severely in the struggle which must have taken place. Hyrcania, it is true, continued an independent existence for decades, since it sent an embassy to the Emperor Antoninus Pius about the year 155 A.D. (Gutschmidt, p. 134). But we hear no more of the house of Gotarzes.

What we can thus merely conjecture from our knowledge of classical history and of Kushan invasions is amply described in the *Shahnameh*. There we have poetic descriptions of the heavy losses sustained by the family of Gotarzes in the course of wars with Kamus, the Kushan chief and other Turanian chiefs. Of course in the *Shahnameh* all invasions from Central Asia are attributed to the instigation of King Afrasyab. But the descriptions in the *Shahnameh* leave us in no doubt about the vast and mixed nomad army of Kushans and other races which rushed down on the North and West of Parthia. The passage from Firdausi dealing with description of the allied and mixed nomads has been so well-translated by the Warners that I beg leave to quote from their version:

بشد پهلوان تا سر تیغ کوه	بدیدار خاقان و توران گروه
سپه دید چندان که دریای روم	ازیشان نمودی چو یک مهره موم
کشانیه و شکنیه و وهری سیاه	دگر گونه جوشن دگر گون کلاه
چغانیه و چینیه و سقلاب و هند	کهانی و رومی و نهروی و سند
زبانیه دگر گون بهر گوشه	درفشی نو آئین و نو توشه

‘The mighty Rustam climbed the heights to view
The Khan and army of Turan ; he saw
A host so mighty that the sea of Rum
Seemed but a lump of wax compared to them !
The troops were from Kashan and Shahn and Wahr,
With divers coats of mail and divers helmets,
Troops from Chaghan and Chin, Saklab and Hind,
Gahan and Rum, Sind and the Indus-banks.
In every quarter there were alien tongues,
Strange flags and meats !’

A great compliment is paid in the Persian epic to the leader of the Kushans.

ز کاموس خود جای گفتار نیست	که ما را بدو راه دیدار نیست
درختیست بارش همه گرز و تیغ	که گرز سرش سنگ بارد زمیغ
ز پیلان جنگی نجویید گوین	سرش پر ز کینه دلش پر ستیز

‘About Kamus himself we cannot speak,
For we have had no means of seeing him.
He is a Tree whose Fruits are mace and sword,
And, though the clouds rained stones upon his head,
He would not flee from elephants of war :
His head is full of wreak, his heart of strife.’

Nor is the actual course which the Kushan's invasion followed historically in various directions left obscure in the topic. For, as their leader says :

کنم روز بر شاه ایران سیاه	بسه بهره رانم ازین پس سپاه
بر ایرانیان بر کنم روز تلخ	یکی بهره ز ایشان فرستم ببلخ
بکابل کشم خاک زابلستان	دگر بهره بر سوی کابلستان
ز ترکان بزرگان و شیران برم	سوم بهره بر سوی ایران برم
نمانم که ماند تنی پر روان	زن و کودک و خورد و پیرو جوان
که نه دست بادا ازیشان نه پای	بر و بوم ایران نماند بجای

‘ Then will I part our army into three,
And darken the Iranian monarch's day.
I will dispatch one army unto Balkh,
And make day bitter to the Iranians,
Another to Kabulistan and bring
Kabul the ashes of Zabulistan,
And lead the third compact of mighty Turkmans
And Lions 'gainst Iran. I will spare none,
Not women, little children, young or old,
But overthrow Iran, both field and fell.
May not a hand or foot be left to them ! ’

It was in such struggle with the nomadic invasion that the great catastrophe of the house of Gotarzes happened :

تهی شد ز گردان و ازادگان	در کاخ گودز کشوادگان
بیالیز گلبن بنالد همی	ستاره بر ایشان بنالد همی
...	ازیشان جهان پرز خاکست و خون

‘ The portal of the palace of Gudarz,
Son of Kishwad, is void of men of war
And chiefs. The very stars are wailing them,
The rose no longer groweth in the garden,
The world through them is filled with dust and blood. ’

CHRONOLOGICAL PARALLELISM.

Finally we might proceed to give a brief and convenient summary of the chronological parallelism between the narrative in the *Shahnameh* and the sequence of events in Parthian History.

Parthian history.

Vardanes assassinated (45 A.D.).

Reign of Gotarzes (51 A.D.).

Reign of Vologeses I and civil wars in Parthia (A.D. 51-75).

(The flight of Rhadamistus and the capture of his wife Zenobia A.D. 51 ?)

Invasion of Parthia by the Alani and the Kushans.

Narrative of Shahnameh.

Death of Farud.

Gudarz made commander.

Bezan's combats with Palashan.

(Tazhav is pursued and deprived not his wife Ispanoe.)

The battles of Lādan and Hamāwan; the war of Kamus the Kushani.

Obviously the parallelism of history and epic is very close chronologically and such substantial parallelism strongly confirms our identification of particular heroes and incidents of the epic with those of history.

ARGUMENT FROM THE METHODS OF WARFARE.

Another corroborative argument for our view (that in the episodes in question we are dealing with Parthian history) is to be found in the methods of warfare employed. The accounts of fighting are highly realistic and give excellent examples of archery and cavalry engagements—aspects of war in which the Parthians excelled. The conventions and fictions of fighting which Firdausi observes in other parts of the epic are dropped here. Elsewhere the whole course of war is made to depend upon a single combat in which the Iranian hero—be it Rustam or Kershasp infallibly kills his opponent with a stroke of sword or mace and the victory is won; not so in the episodes with which we are concerned. There, to take but one example, one Iranian hero after another is unhorsed or disabled by the well-directed arrows of Farud (Vardanes). Just so we can imagine that the historical Vardanes must have faced the attack of the nobles who had conspired against him and must have brought down several of them by his skilful archery before he was overpowered. Let us glance next at the combat between Bezan and Palashan. Here again we seem to have before us a typical case of a cavalry raid and a sudden encounter and clash between two mounted bodies. The spirited passage in the Shahnameh is well-translated by the Warners:

کبابش بر آتش پراگنده بود

پلاشان فگنده ببازو کمان

خروشی بر آورد و اندر دمید

بیامد پسچیده کارزار

...

...

...

پلاشان یکی آهو افگنده بود

همی خورد اسپش چمان و چران

چو اسپش ز دور اسپ بیژن بدید

پلاشان بدانست کامد سوار

یکی بانگ برزد بیژن بلند

‘ Now Palashan, who had brought down a deer,
 Was roasting some kabab upon a fire,
 And eating with his bow upon his arm,
 The while his horse was ranging free to graze
 It saw afar the charger of Bizhan,
 Neighed loudly, and ran in ; so Palashan
 Knew that a horseman came prepared for fight,
 And shouted to Bizhan.’

Finally, we come to the great struggles at Lādan and Hamāwan with the allied nomads from Tartary and Central Asia. Here, again, the accounts of warfare in the *Shahnameh* are highly realistic and there is a very and exact pointing of the might of the allied nomads advancing on Persia and the manœuvres and shifts to which the Iranian army facing them had to resort. Thus we find Fariburz, the Iranian general, resorting to a truce in order to gain time. Not succeeding in this the Iranians retire and fortify themselves on Mount Hamāwan and thence attempt night attacks on the foe. In a word, in the episodes with which we are dealing, the usual poetic conventions are laid aside and the Iranians (Parthians in this case) on the one hand and the nomads on the other are unmistakably realistic and life like.

CAUSES OF THE UNRIVALLED POPULARITY OF THE HOUSE OF GOTARZES IN PARTHIA.

The last problem which we shall discuss in the present paper is this : how can we account for the unrivalled popularity of the house of Gotarzes in the whole range of Parthian heroes and princes ? Parthia produced many princes far more eminent than Gotarzes. There is, for example, Mithradates II who saved Parthia and expanded it by the crushing defeats which he inflicted on the Sakae. There was Orodes I in whose time Crassus was defeated and slain. There was prince Pacorus who conquered Syria and Phrates IV who withstood and drove back Mark Antony. Yet none of them are remembered in the national epic. While they are utterly forgotten, to Gotarzes, and his family are devoted hundreds of pages in the *Shahnameh* ; and yet, in the opinion of an able historian like Rawlinson, the civil wars waged by Gotarzes and his successors were a main factor in the decline of Parthia.

We have seen already how many episodes in the *Shahnameh* are devoted to the house of Gotarzes. Let us now contrast with the slight mention made of some other Parthian heroes in the great epic. It might be mentioned that the only sequential narration of exploits among the Parthian notabilities is reserved for the house of Gotarzes—the others being given, so to say, only an occasional look in. Thus the claims of the great house of Karen which not only upheld Parthian monarchy but produced some of the finest heroes of the Sassanian age could not

be entirely overlooked in the *Shahnameh*. But, as we have said, the mention is brief and occasional. A Karen is mentioned in the age of Minochihr and his successors and others in the ages of Shapor II, Yezdegerd I, Bahram Gor. The virtues of a Sokhra or Sufrai are mentioned under kings Peroz and Kobad. And if the house of Karen had to be content with occasional mention, other families could not expect more. The famous house of Mihran comes into view only now and then in the persons of Milad and of Gurgin; even of such prominence it owed a great proportion to its feud with the house of Gotarzes. As for the other great Parthian house of Suren, which counted in its genealogy, several king makers as well as the great general who defeated Crassus, it is unrepresented in the *Shahnameh*, except by the traitor Mahoi Suri who betrayed the last Sassanian monarch.

But while the house of Gotarzes had the good fortune to secure the lion's share of poetic fame in the national epic, it received something like apotheosis in religious works like the *Dadistan-i-Dinik*. There its ancestor Gew is mentioned as one of the heroes who will assist in the work of inaugurating the millennium (West, *Pehlevi Texts*, II, 78).

How then can we account for the pre-eminence accorded to the house of Gotarzes both in the national epic as well as in religious tradition? A conjectural reply is alone possible under the circumstances, but a comprehensive study of the history of Gotarzes and his family does suggest some considerations very relevant to the matter. One great title of Gotarzes and his descendants to great national gratitude and historical reputation was its successful assertion of the independence of the Hyrcanian nation against Parthia after a long period of dependence. They not only secured its independence but obtained for it an international recognition as we learn from the embassies sent by it to Rome.

A still greater and indeed indisputable title of the house of Gotarzes to epic renown was the gallant resistance which it offered to the flood of Kushan and other nomadic invaders. As the *Shahnameh* repeatedly asserts, the house of Gotarzes lost most of its members in fighting for Iran against these nomads. Obviously its great sacrifices saved the situation, for both Parthia and Hyrcania escaped the fate which the nomads dealt out to other countries of the Near East. For about 40 A.D., Kudschala-Kara-Kadphises I had consolidated the Kushan states; while under his son Wima-Kadphises II, the Kushan power stretched from Central Asia to Benares and Gujrat on the South. The Western Satrapies and South-West Scistan were overwhelmed (Goetz, *Epochen der Indischen Kultur*, p. 144).

Such was the danger against which the house of Gotarzes had to strive—in some sort of collaboration, of course with the main Parthian Kingdom.

An additional factor must be taken into account which contributed to the glorification of the house of Gotarzes. As Dr. Gray (of Columbia University) has pointed out it was in the East and North of Iran that the religious tradition of Zoroastrians was formed. As a result, Median and Parthian kings, provided they struck the popular imagination sufficiently, had a chance of receiving apotheosis; but not one of the Achaemenid or Sassanide kings from the West could aspire to it. I have attempted to show in my paper on 'Azi Dahāka in History and Legend'¹ that it was King Huwakhshatara (Cyaxares) of Media who was apotheosized as Hushedar, one of the leading heroes of the Iranian millennium. He owed this greatness to his conquest of Nineveh and his success in meeting the great Scythian incursion of his day. It might be conjectured that the apotheosis of the hero Gew (of the family of Gotarzes) was to some extent due to the brave opposition which he and his family offered to the Kushan and other nomadic invasions of their time.

It is necessary to add a word regarding the artistic effect upon the Iranian epos of the grafting of the history of the Parthian house of Gotarzes upon the much older legend of Kai Khusrau which goes back to the age of the Awesta. To put the matter quite briefly, from the historical point of view, the result was hopeless entanglement and confusion of accounts belonging to widely different period. But from the artistic point of view the result has been unexpectedly brilliant—thanks to the consummate skill both of Firdausi and of the earlier ballad-mongers on whose compositions he drew. In the first place, flesh and blood was added to the meagre outlines of the wars of Kai Khusrau with which the Awesta had supplied posterity. The void left by the Awesta was filled up with stirring events from Parthian history. The bards and admirers of the Parthian dynasties and families were also gratified by the fact that the glory and exploits of these houses were clothed in the halo and prestige of an indefinitely remote past. We, too, have reason to be gratified as lovers of poetry; for the piling up of the tragedy of the house of Gotarzes on that of Siyawash and his great son has called out the full genius and powers of Firdausi and his nameless predecessors and has given them a task of immense poetic possibilities. The national poetic genius was beautifully adapted to the treatment and tracing of vendettas and tragedies; and the mixing up of knightly exploits, tragic events and stern vendettas of the houses of Kai Khusrau and Gotarzes furnished the bards with a milieu in which they could revel and an atmosphere in which the brightest as well as the most sombre colours could be employed alternately to the greatest artistic advantage.

¹ *J.P.A.S.B.*, Vol. XXVI, 1930, page 467.

The Sraosha Yasht: its place in the History of Mysticism.

By SIR J. C. COYAJEE.

In some earlier papers which I read before this Society I have attempted to trace the interrelations and parallelisms of the legends and cults of old Iran and China. In the present paper I shall endeavour to show how closely intertwined are the roots of the venerable mystic systems of the two countries. *Inter alia* it will appear how little ground there is for the belief that the development of Sufism was not influenced by mystic tradition of old Persia. Indeed even in an earlier paper of mine reference was made to one of the eternal symbols of eastern mysticism and there was shown the connection between the Sin-Mereg of the Bahram Yasht, the 'Sien-Ho' of the Taoist symbolism and the 'angā' of Sufism. The Bahram Yasht and other Yasht contains much plant and bird symbolism which is of great significance in the evolution of Mysticism, e.g. the raven, the phoenix, and 'the tree of all remedies'. But the Sraosha Yasht, I submit, stands highest in the old Iranian presentation of mysticism, inasmuch as it deals exclusively and pretty fully with problem of problems of mysticism—the nature and aspects of perfect saintship. An attempt will be made here to discuss the interrelations of the mystical aspect of the Sraosha Yasht with the Taoist system on the one hand and with Sufi doctrines on the other. The analogies of the old Zoroastrian mysticism (as represented in the Sraosha Yasht) to the Taoist teaching will be found to be of great interest; and so will also be the anticipations of Sufism to be met with in that Yasht.

Regarding the exact position occupied by Sraosha in the heavenly host there has been and there is room for much speculation. He is not one of the Archangels, though he is admitted to participation in the Council of the Archangels (cf. Jackson, *The Iranian Religion*, p. 46). Nor is he an angel in the sense of being assigned the guardianship of any of the various elements in the world (*Ib.*, 47). Yet according to the Pahlavi texts he is 'the Sālār-i-dāmān-i-Hormazd' 'the leader of the creation of God'. In the Gathas he is put even side by side with Kshathra, or the Dominion of God. Spiegel has regarded him as a god of light; and Tiele considered him to be the personified abstraction of obedience. Dr. Jackson felicitously reconciles the main points of view by calling Sraosha 'a sort of priest-god, an embodiment of the divine service' (*Ib.*, p. 59). With all deference I propose to follow this idea of

Dr. Jackson a little further and to designate Sraosha as 'the saint-god' or 'as the spirit or genius of saintship'. At any rate we shall adopt this idea as a working hypothesis for our study and see how it will fit in with the descriptions of Sraosha to be found in the Yasht called after his name. But first let us paraphrase a little the title 'saint-god' which we have just adopted. In the history of theology, the priest-god or saint-god has always had a double aspect. He is sometimes the god merging into the man and the saint. On other occasions he is the saint (priest) merging into god head, and that is surely the objective of all systems of mysticism, for no system of mysticism can separate the perfect saintship from god head. The perfect saint is in a sense also admitted to the counsel of Archangels; he is a 'priest-god'; he is also the 'leader of the Divine creation'; and it is the spirit of saintship which in its eternal vigils 'guards the sleeping world'; and the Sraosha Yasht emphasizes all these aspects.

ABODE AND LOCALITY ASSIGNED TO SRAOSHA.

We shall begin by examining the locality assigned by Zoroastrian mysticism to this 'priest-god' or 'genius of saintship', and compare this locality with the situation assigned to the highest mystic power or entity in other systems of Mysticism. We get our answer from *Yasna* 57 where Sraosha is assigned a victorious house on the highest mountain top—that of the Haraiti Bareza—a house 'which is self-lighted from within and decked with stars on the outside'. The Rashna Yasht identifies the mountain as the one round which the Sun, Moon, and Stars revolve (*Yt.*, 12. 25). Fortunately, through the version of Nairyosang, the traditional view of the position of the Haraiti Bareza is known to us. Nairyosang confidently identifies that mountain with Mount Meru and thus the Avesta and traditions place the location of Sraosha by the Polar axis. The identification of the Haraiti Bareza and Meru was most probably based upon the belief in the Yashts that the sun and stars revolve round the former and the similar belief held about Mt. Meru in the Indian epics (cf. Hopkyns, *Epic Mythology*, p. 10). It might be added that in the Indian epics Mt. Meru is self-luminous just as the house of Sraosha on the Haraiti Bareza is said to be self-luminous. Again, while in the Avesta the spirit of saintship in the person of Sraosha is located by the polar axis (round which the sun and stars revolve) in the Indian epic the seven Devarshis headed by Vasishtha 'have their rising and setting as stars on Meru in the North' (Hopkyns, *op. cit.*, pp. 181-182). We see thus already a confirmation from comparative Mythology of the hypothesis with which we started that of identifying Sraosha with the genius of saintship.

It is here too that we get our first parallel from Taoist conceptions of the genius of saintship; for the Taoists also make the region of the Pole-star the location of such saintly genius. Thus we read in the Taoist tract called the 'Thai-shang' that 'there are also the spirit-rulers in the three pairs of the Thai stars of the Northern Bushel' (i.e. the Great Bear) (cf. *S.B.E.*, Vol. 40, p. 236). The idea of the mountain as found in the Haraiti Bereza is also found among the Taoists for the Thai stars are called a mountain (*S.B.E.*, Vol. 39, p. 167). Indeed the reaching of the summit of saintship by any one is described as having attained the North Pole. Thus Chwang-tse observes that Yu-Chiang got the Tao and 'by it was set on the North Pole' (*S.B.E.*, Vol. 39, p. 245). Again as regards the well-known 'Classic of the Pivot of the Jade', it is observed that its object is to teach men to discipline and refine their spirit and the name of the classic has been illustrated by referring to the North Star which is called 'the Pivot of the sky revolving in its place and carrying round with it all other heavenly bodies' (cf. *S.B.E.*, Vol. 40, p. 265). Here we have the parallel to the Avesta idea of 'Sun, Moon, and Stars going round the Haraiti Bereza'.

Here also we come upon the first traces of the influence of old Persian mysticism upon the Sufi doctrines. For the idea of the connection of the genius of saintship with the North Pole which we have traced in Sraosha Yasht and in the Taoist texts is also strongly emphasized in the Sufi system. There the great saint of any particular age is called the *Qutb* (the Pole). This conception runs through the whole literature of Sufism. As the Sufi system developed mainly in Iraq and Khorasan which are provinces of Persia it is far more probable that it was influenced by Iranian concepts about the nature of saintship though of course the influence of Taoism cannot be neglected. In this connection it is to be noted that the Sufi doctrine of saintship was perfected by Hakim Tirmidhi (cf. Nicholson's Translation of the *Kashf al-Mahjub*, p. 210) and that Tirmidhi was situated in Central Asia—the common focus of Iranian and Taoist mysticism.

The above consideration and some others which we shall presently adduce make it almost certain that the Sufi doctrine of Saintship (ولاية) was formed to a considerable extent under Iranian and Taoist influences. Let us take another important instance of this form what might be called the numerology of the Sufi doctrine of saintship. Thus we are told in the *Kashf al-Mahjub* (Nicholson's Translation, pp. 213-214) that in any age there is a certain number and hierarchy of saints. 'Of those who have power to loose and to bind there are 300 called Akhyar, and forty called Abdal, and seven called Abrar, and three called Nuquaba and one called *Quth*' (or Pole-star). With this let us compare the numerical

configuration of the ancient mystical Chinese hall of Ming-tang which formed the Chinese conception of mystical hierarchy.

	S			
	4	9	2	
E	3	5	7	W
	8	1	6	
	N			

We shall see that the numerology here corresponds exactly in every detail to that of the Sufi doctrine of saints. We note in the plan of the Ming-tang that the head or chief pontiff of mysticism represented by the number 'one' is placed in the due north and that number represents the *Qutb* (or North Pole of the Sufis). The numbers 3 and 7 are ranged on the right and the left of this chief figure. We remember that in the Sufi doctrine of saints these numbers represent the Nuqabā and the Abrār respectively. If we add up the numbers on the periphery of the figure we get $(4 + 3 + 8 + 1 + 6 + 7 + 2 + 9) = 40$ which is the number of the Abdāl. If we multiply *inter se* the numbers on each side of the square and add them we get the number of the Akhyār. Thus $(4 \times 9 \times 2) + (2 \times 7 \times 6) + (6 \times 1 \times 8) + (4 \times 3 \times 8) = 300$. There remain the number of Awtāds, viz. 4 which is got by taking the number of the five polar mounts and deducting one for the North Pole which has been counted already. For a good discussion of the palace of Ming-tang I would refer the reader to Marcel Granet's 'Danses et Legendes de la Chine Ancienne, pp. 116-118'.

Having now envisaged the self-illuminated and star-spangled 'house of Sraosha' as well as the Chinese mystical 'palace of Ming-tang' (as places in which the genius of saintship is enthroned in the North) we have to find a parallel in the Sufi system. This parallel is interesting enough, as we have here an Arabian contribution in the shape of a tent. The *Qutb* (or Pole) is there in the centre to support the tent while on four sides are the four Awtād (literally pegs of the tent).

SRAOSHA AS WORSHIPPER OF THE TWO PRODUCERS AND PRESERVERS.

From the locality of this genius of saintship we turn to its functions. And the very first function ascribes to Sraosha in his Yasht renders certain the intermingling of the Iranian and Taoist conceptions of saintship. In *Yasna*, 57, I, 2 we read of Sraosha being the first to worship the not only Ahura

Mazda and the Amesha Spentas but also 'the two protectors and creators who created all creation'. That passage has baffled commentators and can only make sense if we accept the help of the Taoist doctrine of the Yin and the Yang as the two creators; for obviously we cannot imagine Sraosha as worshipping Ahura Mazda and Ahriman. According to the Taoists all things are produced by the Yin and the Yang reflecting light on each other, covering each other and regulating each other (*S.B.E.*, Vol. 40, p. 128), and so the Yin and Yang constitute 'the two producers'. The Yin and Yang are in fact the two-fold states of the primary ether (*S.B.E.*, Vol. 40, p. 47), and the duty and delight of the perfect man is in contemplating the play of the Yin and Yang. It is in this sense only that we have to interpret the particular passage in the Sraosha Yasht for, as the 'priest-god' or 'genius of saintship' it is the task of Sraosha to watch the interplay of controlling forces like the Yin and Yang. The place given to the 'two producers and protectors' in the particular section of the Sraosha Yasht deserves to be studied in order to get any exact idea of their nature. The 'two producers' are placed not only after Ahura Mazda but after the Amesha Spentas and so they can only be regulative forces of nature parallel and similar to the Yin and Yang. It is interesting also to note the *parallelism of the order of worship* mentioned in the Sraosha Yasht and that which according to Ssema Tsien was observed by the ancient Emperors of China. The Yasht puts Ahura Mazda first, then introduces the Amesha Spentas and finally brings in the two controlling forces. In the same way the old Emperors of China worshipped first the Lord of Heaven, then the Lords of Earth and War, and after then the lords of the Yang and Yin operations (see *S.B.E.*, Vol. 39, p. 41, note 1). In this connection it is interesting to note that according to Taoist traditions the Great Bear controls Yin and Yang and we have already noted the connection of Sraosha with the regions of the Polar Star and Great Bear.

On account of the very strict monotheism prevalent in Islam no direct emphasis could be laid by the Sufis upon regulating forces like Yin and Yang. But it was not possible to shut out such speculation entirely, for dualism might almost be said to form a category of religious psychology. The Sufi writers have many doctrines which assume the Yin and Yang theory. Thus Jalaluddin Rumi observes (290):

هست سرگردان فلک اندر ز من	همچو مردان گرد مکسب بهر زن
وین زمین کدبانوئیها می کند	بر ولادات و رضاعش می تند
پس زمین و چرخ دان ای هوشمند	چون که کار هوشمندان می کنند
گر نه از هم این دو دلبر می مزند	پس چرا چون جفت درهم می خزند

[The sky keeps wandering (revolving) about the earth, just as men go about their occupations for the sake of their wives. Now this earth acts like a wife and exerts itself to bear children and to nurse them. Consequently, Oh wise man, you must consider the sky and the earth as intelligent beings. If these two lovers (the sky and the earth) do not enjoy each other, why do they stick to each other like man and wife ?]

This is almost a rendering of the view of the Taoist philosophers who regarded heaven and earth as the principles of Yin and Yang. Thus Chang Heng states: 'Heaven has its substance in Yang, therefore it is round and thereby moves. Earth has its substance in Yin, therefore it is flat and thereby motionless. The moved pours out and fecundates, the unmoved contracts and breeds' (A. Forke, *World-conception of the Chinese*, pp. 176-177). In fact heaven and Earth symbolized Yin and Yang in all Taoist and Confucian literature.

• SRAOSHA AS RELIGIOUS TEACHER.

The Sraosha Yasht puts a great emphasis upon the capacity of the priest-god as a teacher of religion and as a repository of sound theological doctrine. He is the first reciter and student of the five Gathas (*Yasna*, 57, III, 8). He wields as his weapon the prayer Ahuna-Vairya and the Yasna Haptanghaiti and the Fuso Manthra. But besides this religious equipment as the Sraosha Yasht tells us the Creator and the Archangels come forward to bear witness to the correctness of the doctrine taught by Sraosha. Obviously if Sraosha was only conceived as an angel it would be irrelevant to emphasize soundness of doctrine. No one ever suspected an angel of heretical leanings or of unsound doctrine. It is only since Sraosha is also a representative of the saint that the Yasht calls on Ahuramazda and the archangels to guarantee the soundness of his teaching (*Yasna*, 57, X, 24). For as representing sainthood Sraosha is a god-man. In fact this special divine testimony claimed for the correctness of the doctrine of Sraosha implies the existence of an esoteric doctrine taught by the representatives of the Sraosha cult which might easily have been questioned by the orthodox clergy of the day and which required for its acceptance by the orthodox public special and emphatic guarantees.

HIS 'BARSOM.'

Sraosha was not only the first of Ahura Mazda's creation is to offer prayer and to chant the Gathas but to use and spread the *barsom* (*Gray*, p. 106). The nature of the *barsom* used by him deserves attention. It was not the fairly short and ordinary barsom but 'three-stemmed, five-stemmed, seven-stemmed,

and nine-stemmed. It was as tall as the knees of a man or even higher' (Ys., 57. 6). This is reminiscent of Chinese beliefs regarding branches of trees which possess out of the way shapes or sizes. Students of the fourth volume of De Groot's admirable work on 'the Religious systems of China' will remember a full description of beliefs about trees and branches which attain special height or shape. Similarly while the *barsom* used ordinarily is about nine inches long only, Sraosha is made to use barsom which is much taller—as high as a man's knee and even bigger. Then we turn to the fact of the large number of branches possessed by the *barsom* used by the holy Sraosha. Obviously, plants possessing so many branches and branches of which the number corresponds to the standard mystical numbers (3, 5, 7, 9) were believed to possess special efficacy; or, as the Chinese would put it, such vegetation would be possessed of much 'soul substance' and 'vital power' (cf. De Groot, *The Religious system of China*, Vol. I, pp. 295-300). That would at least follow from the notions entertained by the Chinese about 'the mystic influences leading to extraordinary shapes and sizes in vegetation. It need hardly be pointed out that the numbers ascribed to the branches of the barsom mentioned in the Yasna are specially important in Chinese mysticism. For one thing the numbers symbolize progress in mysticism and the several degrees of mystical attainment. Thus we read in the sixth book of Chwangtse (para. 8) that the initiate was able after *three* days' study to banish all worldly matters from his mind, after studying *seven* days to banish from his mind all thoughts of men and things; and after *nine* days he was able to count his own life as foreign to his true self. In fact the numbers mentioned in the Yasna regarding the *barsom*-branches employed by Sraosha are symbolical of the gradations in the growth of mysticism (*S.B.E.*, 39, 246). It might be added that the odd numbers 1, 3, 5, 7, 9 also represented the heavens (as opposed to the Earth) in Chinese mystic system (cf. Forke, *Geschichte der alten Chinesischen Philosophie*, p. 179).

THE CHARIOT OF SRAOSHA AND HIS DAILY PEREGRINATIONS.

We might now suitably bring in a study of the peregrinations of Sraosha over the world and of the corresponding points in Taoist and Sufi doctrine. As Sraosha is connected with the region of the Pole-star and the constellation Great Bear, and as this constellation goes round the star in twenty-four hours we can see how the idea of the daily peregrination of Sraosha over the Earth arose. The Taoists have a similar idea of the great Imperial ruler of heaven being in the Pole-star, and the seven rulers in the constellation Great Bear going around it daily. 'Revolving around the pole it descends to rub the four

quarters of the sphere and to separate the Yin and the Yang ; by so doing it fixes the four seasons, upholds the equilibrium between the five elements ; moves forward the subdivisions of the sphere, and establishes all order in the Universe ' (De Groot, *The Religious system of China*, Book I, p. 317). We might also refer to the idea expressed in the book 'Shang Kan Ying Pien' to the effect that the spirit lords of the Pole-star review the happenings on the Earth and report to heaven all the transgressions of mankind.

But while the idea of the daily peregrinations of Sraosha has such interesting parallels in Taoism it is best carried forward in the Sufi tradition. We note that in the Yasht Sraosha goes over the Earth in car drawn by four swift steeds. Similarly the Kashf al-Mahjub says : 'It is well known among Sufis that every night the Awtad must go round the whole universe, and if there should be any place on which their eyes have not fallen next day some imperfection will appear in that place ; and they must then inform the *Qutb*, in order that he may fix his attention on the weak spot, and that by his blessing the imperfection may be removed' (Nicholson's translation, p. 228). In the Sraosha Yasht four fleet steeds carry Sraosha over the universe, while the Sufi tradition gives him four subordinates for surveying the world. But it is not only vicariously that the *Qutb* (Pole-star) surveys the world ; for there are many anecdotes of Sufis having encountered the *Qutb* during his peregrinations on the Earth.

The origin and character of the chariot of Sraosha is also made clearer by a reference to Chinese analogues. For the whole conception of a chariot going round the world arose from the shape of the constellation Great Bear which can be conceived as that of a car ; and in fact in Chinese tradition the Great Bear does form the chariot of the Emperor of Heaven. There is a passage in *Yasna*, 57, XI, 29 of which the meaning is much disputed and on which some light might be thrown by a reference to the Chinese parallels. In the passage in question the movement of Sraosha from India in the East towards the West is described. Here the real reference might be to the succession of the seasons which are governed by the Yin and the Yang. 'When the tail or handle of the Great Bear points to the East (at nightfall) it is spring to all the world and when it points to the west it is autumn,' Prof. Adolf Forke has given us a pretty full description of the alternation of the Yin and Yang during the seasons and according to the points of the compass. 'At the winter solstice, the "Bushel" points direct north, the Yin fluid has reached its climax, and the Yang fluid begins to grow. . . . At the summer solstice the "Bushel" points direct south' (Forke, *The World-conception of the Chinese*, pp. 177-183). Thus the reference is probably to the causation of the seasons by the forces of Yin and Yang or of 'the two

producers and preservers'—to quote the language of *Yasna* 57.

So far we have been dealing with the movements of the car of Sraosha as described in the Yasht and their Chinese parallels. But it is even more apt and interesting to find that in ancient China as in old Iran the main function of individual saints as well as of the genius of saintship was to peregrinate the world with the aim of regulating it and of guarding it against harm. It is obvious that the peregrinations of Sraosha from far off India in the east to the west, as described in the Yasht, were for regulating the world's affairs in his capacity of the commander and guardian of the universe ('Salar-i-daman-i-Hormazd'). On the Taoist side we have copious analogues of this; and, indeed, apart from other Taoist writings Book XI, Part 2, Section 4 of Chwang-tse by itself supplies numerous examples. Thus the great sage Kwang Chang-tse *who lived at the highest points of the Great Bear* is made to say when asked about the methods of regulation of the universe, 'I will proceed with you to the summit of the Grand Brilliance, where we come to the source of the bright and expanding element. I will enter with you the gate of the Deepest Obscurity, where we come to the source of the dark and repressing. There heaven and earth have their controllers; there the Yin and Yang have their Repositories: (*S.B.E.*, Vol. 39, pp. 297-99). In the same work of Chwang-tse we encounter a very eminent sage significantly called 'the man whose name is not known'. He is questioned about the way in which he manages to govern the world and replies thus: 'I would simply play the part of the Maker of all things. When wearied, I would mount on the bird of the light and empty air, proceed beyond the six cardinal points and wander in the region of non-entity.' (*Ib.*, p. 261.) Very similar too to the regulation of the universe by Sraosha as its 'government by the intelligent kings' (*Ib.*, p. 262). These 'intelligent kings' were no doubt the great Taoist saints. The same work speaks of Lich-tse, a master of the *Tao* as 'one who mounts on the ether of heaven and earth in its normal operation and driving along the six elemental energies of the *changing seasons*, thus enjoying himself in the illimitable' (*Ib.*, p. 169). These Taoist parallels might usefully suggest to us that the four steeds of Sraosha were meant also to represent the energies of the four seasons.

SRAOSHA AS THE PROTECTOR OF SAINTS.

Let us now turn to another important function of Sraosha. In *Yasna*, 57, IV, 10 Sraosha is described as constituting a strong house for the 'Drighaoshcha Drivyaoscha'—translated often as poor men and poor women. But looking to the veneration with which the word درویش (Darwish) has been looked

upon in Persia and Central Asia for countless ages we might translate it as 'Saints, male and female'. And here there is no lack of parallel Taoist texts for the verse which we are examining and which emphasizes the fact that Sraosha builds a mighty house for the saints especially after sunset. Thus we read in Chwang-tse that 'the perfect men of old trod the path of benevolence as a path which they borrowed for the occasion, and dwelt in Righteousness as in a lodging which they used for a night' (*S.B.E.*, Vol. 39, p. 356) and this old but poetical idea was ever present with the great Sufis. Thus Sultan Abu Said Abul-Khair, the eminent Sufi, observes :

شب خیز که عاشقان به شب راز کنند گرد درو بام دوست پرواز کنند
 هر در که بود وقت شب در بندند الا در دوست را که شب باز کنند

(Awake at night for the saints study secrets of mysticism at that time and fly about the gates and roof of their Friend. At night every other gate is closed except that of the Almighty Friend which is then opened.)

So the concepts of the Sufis are not so far from those of the Taoists and of Sraosha Yasht after all and yet I sometimes suspect that the fourth 'Karda' of *Yasna*, 57, can be made to bear a more realistic meaning and refer to the wandering 'dervishes' who have for untold ages traversed Central Asia and required strong (خانقاه) for shelter at night. When we remember how many centuries the Buddhist monks and nuns, the Taoist monks as well as the Fakirs whom the Chinese called 'hill-sages' and 'western men' have gone about Central Asia it requires no great stretch of imagination to recall a set of Iranian Derwishes treading the same paths many of them belonging to the cult of Sraosha.

THE YOUTHFULNESS OF SRAOSHA.

Among the attributes of Sraosha an important place is given in the Yasht to his youthfulness. *Yasna*, 57, VI, 13 has a magnificent and poetical description of the youthful nature of Sraosha. There is no such emphasis laid in any other Yasht about the youth of angels. Here again we see the eminently mystical and human character of the Sraosha Yasht, for it is one important aim of mystical practices to maintain perennial youth. Whether he is a Taoist or Yogi or Sufi or Rosicrucian, the mystic is always aiming at and obtaining the secret of youth. Perhaps, however, no system worked so persistently for this object as Taoism. As Dr. Legge observes 'Lao insists on the Tao as conducive to long life, and in Chwang-tse we have references to it as a discipline of longevity. My own opinion is that the methods of the Tao were first cultivated for the sake of longevity'..... In the paragraph

that follows there appears a Nu Yu, who is addressed by another Taoist in these words, ' You are old, Sir, while your complexion is that of a child ; how is it so, and the reply is, ' I became acquainted with the Tao ' (*S.B.E.*, Vol. 39, p. 24).

As the heir of the old Iranian and, to some extent, of Taoist traditions Sufism also claimed powers and methods of Juvenation. And the great mystic Jalaluddin Rumi has expressed this clearly and forcibly :

دایمما ترو جوانیم و لطیف تازه و شیرین و خندان و ظریف
پیش ما صد سال و یکساعت و یکست که دراز و کوتاه از ما منفکی است
چون نباشد روز و شب با ماه و سال کی بود سیری و بیری و ملال

(We, i.e. the Saints, are always fresh and young, sweet and smiling. To us a hundred years are no more than an hour since ' long ' and ' short ' are ideas quite remote from us. Since then with us there are no night and day or months and years how can we become tired, old or worn out ?)

TRACES OF ESOTERIC DOCTRINE IN THE YASHT.

We have seen earlier that the Yasht claims special divine sanction and guarantee for the correctness of the doctrines of the Sraosha cult—a course for which there is no parallel in any of the other Yashtas (*Yasna*, 57, X, 24). It was also noted that the history of mysticism showed numerous instances of such claims. Thus, while some eminent Sufis avowed and gloried in their heterodoxy (کفر) others made energetic efforts to force their Sufi doctrine within the framework of orthodoxy (شریعت). Similar efforts we note were made in Europe by mystics like Swedenborg. We now proceed to inquire whether the Sraosha Yasht exhibits any doctrines which might arouse doubts among the orthodox and which would only be accepted under special divine sanction ; and there seems to be a fair number of such views. For one thing the very text which begins *Yasna* 57 must have become a controversial matter—for there Sraosha is shown as worshipping Ahura Mazda, the Amesha Spentas and the ' two producers and preservers ' (corresponding to the Taoist Yin and Yang). This implied a special teaching about cosmogony unknown to other cults of Iran. In fact here we have the beginnings of that give-and-take between old Iran and China which eminent scholars have been studying recently. Nor was this all. The doctrines of the Sraosha Yasht show a certain tendency—worthy again of a lofty mysticism—of confining worship to Ahura Mazda. His attributes (the Amesha Spentas) and the ' two producers and protectors ' and of neglecting by implication all angelology and mythology. We note also that the texts

which Sraosha recites and employs are confined to the Gathas, the Ahuna-Vairya and the Yasna Haptanghaiti: none of the litanies to the minor angels are mentioned. Through the Sraosha Yasht again no other angel is even mentioned except Haoma and Arshlat and this angel enters only to pay homage to Sraosha. In fact we have here a reversion to the Gathic type of mysticism on the one hand, and we have great parallelism with the Taoist mysticism on the other. As one of the oldest works on Taoism put it. 'The saint forms a trinity along with the heavens and the earth; he stands on an equal footing with the great spirits and with their help regulates the administration of the world (Forke, *op. cit.*, p. 178). So Sraosha—the spirit of saintship—is the equal of archangels and he is the guardian angel of the world. Lastly, attention has been drawn to the fact that the Sraosha Yasht has a system of mystic numbers allied to the old Chinese system.

SRAOSHA AND WEN-TCHONG.

In the above discussion we have noticed the close analogy between the different attributes and functions of Sraosha and those of the loftiest saintship of Taoism and Sufism. We can now go a little further and investigate a curiosity of comparative mythology by studying and comparing the functions of Sraosha and the Taoist deity Wen-tchong (otherwise called Lei-tson). The reader will find a good summary of the functions and character of Wen-tchong in Father Doré's *Superstitions en Chine*, Part II, Vol. 10, pp. 682-685, or he might turn up Grube's translation of Feng-Shen-Yen-I for a similar account. We note first that Wen-tchong is like Sraosha 'the great preceptor'. He is also identified with the Great Bear and we have seen the close connection of Sraosha (with his seat on Haraiti Bereza) with the region of the Pole-star. Sraosha, as we know carries 'the club uplifted' as his weapon (*Yt.*, 11, 12). Correspondingly, Wen-tchong has a white hatchet which he bears erect when marching to spiritual combats. Further, it is added that Wen-tchong keeps traversing the world seated on an animal which can go thousands of miles in the twinkling of an eye. This agrees very well with Sraosha's peregrinations of the earth on his four quick coursers. Finally, Sraosha is the protector of the houses of the faithful (*Yt.*, 11, 20). That reminds us that the name of Wen-tchong (viz. Lei-tson) is written in most Chinese houses on the lintels of doors as a pressing talisman. I believe, I am right in saying that the similarity of Sraosha to Wen-tchong forms a curiosity of comparative mythology, and I have pleasure in bringing it to the notice of Iranists and Sinologists respectfully and in requesting them to devote further study to it.

THE SPIRIT AND ATMOSPHERE OF THE YASHT.

We have seen that the Yasht embodies the ideals and aspirations of the mystics of old Iran, and its general atmosphere of the Yasht corresponds to this suggestion. True, the angel Sraosha is described as a warrior but he smites great demons in order to protect a few humble saints and travellers. The angelic pomp and circumstance, the personifications of nature's might in which other Yashts are so rich is eminently wanting in this Yasht. The entire human personnel of this Yasht consists of a few saints and travellers whom Sraosha protects, besides the inmates of the houses where he has been honoured and his faithful disciples have been well-received. Of royal or heroic power and glory we hear nothing. For the angel of saintship can suitably hold communion, on the one hand, with the archangels, and on the other hand with meek and lowly saints and those who receive them in their houses; but he has little enough to do with earthly kings or warriors. The *personnel* and atmosphere of the Yasht thus correspond with what we would expect if Sraosha was, as we have suggested, the genius of saintship.

It is also noteworthy that it is in this particular Yasht that we meet with the closest analogies and parallelisms with the ideas and imagery of the Gospels. When we read (*Yt.*, 11, 20) of 'the houses protected by Sraosha, where the holy Sraosha is dear and friendly treated and satisfied as well as the faithful man' (or the saint), we are irresistibly reminded of *Matthew*, X, 40-41 and 13: 'He that receiveth you receiveth me, and he that receiveth me receiveth him that sent me'. 'And if the house be worthy let your peace come upon it'. Again, corresponding to the claim of Jesus to be 'the good shepherd' we have in the Sraosha Yasht an apotheosis of the shepherd's dog (*Yt.*, 11, 7) where the dog is compared with the angel. 'And therefore we take round us the holy-natured Sraosha, the holy, the friend-smiter, as one does with shepherd's dogs.' I claim that in no piece of literature whether sacred or profane has man's faithful canine friend received such an apotheosis or even justice as in this Yasht. For after all even the good shepherd can do little to save his flock from the wolf without the powerful assistance of his dog. When again we hear Sraosha described as 'the incarnate Word' (*Yt.*, 11, 18), we come across another striking analogy with the 'saint-god' described in the Gospels. But, to conclude, do not these striking parallels found in the Yasht with the spirit and even the phraseology of the Gospels show that the subject of both compositions is the ideal of saintship on Earth—the 'Saint-god' in fact?

**Persian painters, illuminators, and calligraphists, etc.
in the 16th century, A.D.**

By M. MAHFUZ-UL HAQ.

‘Persian book illustrations—which represent almost all that is best in this delicate art—are so intimately connected with Persian literature,’ writes Sir Denison Ross, ‘that most of the spade work in regard to its appreciation and interpretation has perforce to be done by scholars who have devoted their lives to Islamic literature, notably the historical and poetic products of Persian writers. For we are dealing with a history which still remains to be written for the Europeans, and with a literature which exists for the most part only in rare manuscript copies. Before the art critic can set about his work of technical analysis, the Orientalist must explain the political conditions under which the Persian artists worked.’¹ To this, I should like to add that even for the biography of these Persian painters the Orientalist has to come to the rescue of the art critic. The books which contain the biographies of the Persian painters are mostly in manuscript and unless their contents are made known to the art critic the history of painting in Persia will remain incomplete and untrustworthy.

Among the manuscripts which contain a valuable account of Persian painters, illuminators, and calligraphists, is the very interesting *Tuhfa-i-Sāmī*, a biography of the contemporary poets, of Prince Sām Mirzā, a son of Shāh Isma‘il, the founder of the Safavid dynasty of Persia. Sām Mirzā was a scholar, poet, and a patron of letters. Born in 923/1517, he passed two years of his early life (928–930, A.H.) at Herāt, the city of light and learning. There, he held the post of a titular governor under Shāh Isma‘il, his father. But on the accession of Shāh Tahmāsp, his elder brother, he was apparently relegated to a position of inferiority. In 969/1561–2 he rebelled against Shāh Tahmāsp and was soon cast into prison. He remained in prison till 984/1576–7, when he was put to death on the accession of Shāh Isma‘il II.

Sām Mirzā wrote the *Tuhfa* in 957/1550–1, dividing it into ‘seven’ *Sahīfas*, or sections. The *Tuhfa* contains biographies of the contemporary poets and, in view of the unique position of its author and also in view of the fact that he came in personal contact with quite a good number of poets whom

¹ Introduction to M. Blochet’s *Musulman Painting*, (London, 1929), p. vii.

he has mentioned in the book, the value of his account can hardly be over-estimated.

Among the persons noticed in the *Tuhfa* are a number of painters, penmen, and illuminators whose life-history is of particular interest to us. In the list of 'Painters' we get the notices of such distinguished artists as Mirak, Malik Qāsim, Mānī Shīrāzī, and Shāh Qulī, whose biographical sketches though brief are nevertheless valuable. An instance or two will prove my point. It is usually asserted that Mirak died during the reign of Muḥammad Khān, the Shaybānī ruler of Bukhārā, (d. 1510, A.D.), but the fact is that he survived him by forty years at least, for he was alive at the time of the composition of the *Tuhfa* (i.e. in 1550, A.D.) and was in fact 'the leader and guide of the artists of the Court of Shāh Tahmāsp'.¹ Similarly, we learn for the first time (from the *Tuhfa*), that an introduction to an Album of Bihzād's paintings was written by Amīr Sulṭān Ibrāhīm,² a scholar and a chronicler of the age. Was this album different from the one whose introduction was written by 'Khwāndmīr, the author of the *Ḥabīb-us-Siyar*? Probably it was, but the matter requires further investigation.

The account of the calligraphists also is extremely important as it contains the life-sketches of such celebrated penmen as 'Alī al-Kātib, 'Abdullāh Marwārīd, Shāh Maḥmūd, Sulṭān 'Alī, and others. It is usually asserted about the first named calligraphist (i.e. 'Alī al-Kātib) that he died in 924, A.H., but Sām Mirzā tells us definitely that he was alive in 957, A.H., which fact is further proved by the extant specimens of 'Alī's calligraphy.³

The 'extracts' which have been given in the following pages contain the notices of: (i) Painters, (ii) Silders and Illuminators, (iii) Book-sellers, Book-binders, Paper Merchants and Dealers in Chinese pottery, (iv) Inscribers on stones, and (v) Calligraphists.

In preparing these notes I have made use of the following three manuscripts of *Tuhfa-i-Sāmī*:

- (i) MS. No. 682 in the Oriental Public Library, Patna, which was copied in 968, A.H., or 16 years before the death of the author.
- (ii) MS. No. 683, in the same library, which was copied on the 17th Jumāda II, 971, A.H., or 11 years before the author's death.
- (iii) MS. in the Government collection of the Asiatic Society of Bengal. The MS. does not bear the

¹ *Tuhfa-i-Sāmī*, (A.S.B. MS.), fol. 46b.

² *Ibid.*, fol. 31a.

³ See my *Specimens of Muslim Calligraphy in the Ghosh Collection*, (Calcutta, 1927), pp. 6-8.

date of transcription but appears to have been copied by a contemporary.

Here follow the 'extracts' from the *Tuhfa* :

A. PAINTERS.

1. PRINCE BAHRĀM MIRZĀ. He was famous in the realm of calligraphy, more particularly in *Nasta'liq*. He was peerless in the art of *Tarh* (i.e. designing of arabesques), poetry, riddles, and music.¹ He died in 956, A.H.

2. SHAYBAK KHĀN.² In spite of his Turkish origin and mean traits, he was highly skilled in various arts. He used to retouch, with the brush of correction, the paintings of a 'master' like Bihzād—a painter whose peer has not been drawn by the Painter of Creation, since (the day) He drew the first picture of human beings on the Tablet of Existence. He also drew, with the point of his ancestral pen, the line of annulment on the handwriting of Mawlānā Sultān 'Alī of Mashhad—a calligraphist whose equal has not been inscribed on the pages of existence by the pen of Kirāman Kātibīn. He used to ask the former (i.e. Bihzād), 'Draw in this manner', and instruct the latter (i.e. Sultān 'Alī), 'Write in this way'.

3. MIRZĀ SHĀH HUSAIN, son of Shāh Beg, was the Wālī of Sind. It is said that he had some proficiency in painting.

4. SAIIYID 'ABDUŠ ŠAMAD, of Kāshān. He wrote under the pen-name of 'Atā'i. He was a master of drawing, painting,³ and gilding.

5. 'AQĀ MIRAK, the painter. He is descended from the Saiyyids of Iṣfahān. He is unrivalled in painting and outline-drawing (*tarrāhī*). At the present moment (i.e. 957, A.H.), he is the leader and the guide of the artists of the Court of Hadrat Sāhib Qirān (i.e. Shāh Tahmāsp).

6. MALIK QASIM, the painter. He comes from Shirāz. The only defect that one could notice in him was that he claimed descent from Shāh Shujā' of Kirmān. He was a good painter and wrote a beautiful hand in all the *Qalams*. He was a master of the art of letter-writing and possessed extraordinary proficiency in Riddles and Prosody. His memory was so good that if thirty verses were read out to him, even once, he could reproduce them from memory. But he was very unlucky and was unable to draw any advantage from his (extra-

¹ I have omitted unnecessary details and quotations of verses.

² Shaybak (or, Shaybānī) Khān was killed in a battle against Shāh Isma'il (the father of the author) at Tāhirābād, in A.D. 1510.

³ In the A.S.B. MS. 'painting' is omitted.

ordinary) talent. He died in his youth in 947/1540-41. He complains against the world in the following *Rubā'ī* :—

وہی عجب است و روزگاری مشکل کز دہر صفا گشتہ بکلی زایل
خالی ز غبار یکدگر یکساعت چون شیشہ ساعت ندوان یافت دو دل

7. MĀNĪ OF SHĪRĪZ. At first he passed his days as a goldsmith but later, when he had acquired fame as a poet and a man of refined taste, he entered the circle of soldiers—a circle from which no one has come out in perfect safety. He rose to a high position in the early days of the Sāhib Qirān, but, as the proverb runs : 'Diamond cuts diamond', the arrow of his Fortune was, when it had just reached the bow-house of Prosperity, struck with the arrow of (Royal) wrath. This happened at the instigation of Amīr Najm, the goldsmith. He wrote the following *Ghazal* at the time of his departure. His grave is in the cemetery of Surkhāb, in Tabrīz. As he was unrivalled in painting (*Musawwirī*) and peerless in drawing (*Naqqāshī*), his verses also are not void of fineness.

8. AMĪR DŪSTĪ, the painter. He is one of the jesters and libertines of Yazd. He is also the leader of the men of ardour and love. He was gifted with a fine intellect and possessed good manners.

9. QADĪMĪ, the painter. He belongs to Gīlān. He is good in painting, but in poetry also he does not consider himself inferior to others.

10. USTĀD SHĀH QULĪ, the painter. He comes from the town of Qum. He knows painting and geomancy. He considers himself unrivalled as a poet, and writes under the pen-name of *Alwānī*.

11. DĪWĀNA, the painter. He comes from the town of Tabrīz. It is said that he was a companion of Sultān Ya'qūb.

12. NABĀTĪ of Tabrīz. He passes his days in painting and *lapis lazuli* work.

13. SHAIKHĪ of Kirmān. He was unrivalled as a painter and was also perfect as a Mullā.

B. GILDERS, ILLUMINATORS, ETC.

1. MĪR SHUKRĪ. He was a Saiyyid of Shīrāz. He knows book-binding and *lapis lazuli* colour work. It is said that he can play the musical instruments also.

2. ḤAFĪZ MAJLISĪ. He comes from the city of Tabrīz. He knows the Qur'ān by heart and is not bad in playing the Qānūn and Shiturgūh. He also knows *naqqārī* and calligraphy. Besides these, he claims proficiency in twenty other arts as well.

3. NIGĀHĪ.¹ His original home was Chaghtā. He was

¹ In the A.S.B. MS. the name appears as تکلیتی.

a young and importunate lover. He was highly skilled in such arts and crafts as inlaid work and ornamentation (*naqqāshī*).

C. BOOK-SELLERS, BOOK-BINDERS, PAPER-MERCHANTS, AND CHINA-WARE DEALERS.

1. MAWLĀNĀ QĀ'IMĪ of Tabrīz.¹ He passed his days in copying manuscripts. He was also a book-seller.

2. MAWLĀNĀ ZINĀTĪ. He was a paper-merchant.

3. MAWLĀNĀ 'ABDĀL of Kāshān. He is a paper-merchant.

4. MAWLĀNĀ FUNŪNĪ of Isfahān. He knows something of book-binding, but he is a libertine and a vain babbler.

5. 'ISHRĀTĪ QĀLANDAR. His birth-place is not known. He has some knowledge of book-binding.

6. FIKRĪ of Astarābād. He earns his livelihood as a book-binder.

7. ZĀTĪ of Lār. He is engaged in the profession of book-binding at Tabrīz.

8. MAWLĀNĀ MUJALLĪD. He belongs to Kūrāsān and passes his time in book-binding and love-making.

9. MAWLĀNĀ RAMADĀN. He adopted the pen-name of *Fānī*. He is one of the poets of Astarābād and works as a book-binder.

10. QARDĀDMISH. He sells China at Tabrīz. His face was more beautiful than the petals of rose and the freshness of his cheeks was an object of envy even for the sun and the moon.

D. INSCRIBERS ON STONES.

1. 'ISHQĪ of Tabrīz. He is good in Riddles. He is also skilled in inscription work.

2. MAWLĀNĀ NIZĀM. He is a Hāfiz at Imāmzāda 'Abdul 'Azīm. He knows the art of inscribing on stones.

3. FARDĪ of Tabrīz. He is good in Riddles and also in inscription work on stones.

E. CALLIGRAPHISTS.

1. EMPEROR HUMĀYŪN (of India). His handwriting was perfect.

2. AMĪR ṢADR-UD-DĪN MUHAMMAD. He comes from Ashkūr, a village in the suburbs of Tabrīz. He is a Mawlawī and writes good *Nashh* and *Ta'liq*.

3. SAYYID MUẒAFFAR, *Ṭabīb*. He belongs to Kāshān. He is a trader and is well known as a bow-maker and a calligraphist.

¹ The O.P.L. MS. has Khātimī and omits: 'He passed his days in copying manuscripts.'

4. SAIYYID ḤASAN WĀ'IZ.¹ He is a Saiyyid of Shirwān. He is good in *Inshā* and his calligraphy is attractive. He writes under the pen-name of *Faiḍī*.

5. AMIR IBRĀHIM, the Qānūn-player. He is proficient in various arts and writes a beautiful hand. He plays the Qānūn in the style of Khwāja 'Abdullāh. His notes are very melodious.

6. MIR THANI. He is one of the exalted Saiyyids of Nishāpūr and is well-known on account of his good nature and fine intellect. He is a master of Prosody and his calligraphy, more particularly the *Nasta'liq*, is very good.

7. MAWLĀNĀ KAMĀL-UD-DIN ḤUSAIN. He is the son of Mawlānā Ṣadr-ud-Dīn 'Alī, the physician. He was a great physician—a Messiah in the science of *Hikmat*. He had raised the standard of superiority in various arts and sciences. His handwriting drew the line of annulment on the *Ta'liq* writings of the masters (of calligraphy). He died in 953, A.H.

8. MIR 'ALĪ AL-KĀTIB. He is a Saiyyid of Herāt but he was brought up in the holy city of Mashhad. He practised the art of calligraphy under Mawlānā Sultān 'Alī and, in fact, surpassed him. No one has excelled him in *Nasta'liq* calligraphy. Owing to the disturbed condition of Khurāsān, he went away to Transoxiana in 935, A.H. It is reported that at present his eyesight has become weak and, in consequence, his calligraphy also has deteriorated.

9. KHWĀJA MUḤAMMAD MU'MIN. He is the son of Khwāja 'Abdullāh Marwārid. He is the Ya'qūt and the Ṣairafi (of his age) and a *nāsikh* (i.e. the annuller) of the writings of the ancient and the modern masters (of calligraphy). He is a master of *Thulth* and *Naskh* styles of writing.

Qita' :

Every attractive line which is accepted as the model of beauty,

Has been inscribed on his illuminated pages.

Every letter written by him is a pearl from the treasure-house of meaning.

Where is Ṣairafi? Let him come and appraise the value of his (i.e. Mu'min's) pearls.

If I narrate only a fraction of his many excellences, it would cover a whole volume. I have taken lessons from him and the little that I know is through his kindness. He was in my company at Herāt and Shirāz and held the office of Ṣadr. Subsequently, he began to live with Hadrat Ṣāhib Qirān (i.e. Shāh Tahmāsp), but, later on, went away to India where he died in 948, A.H.

¹ In the A.S.B. copy Amīr 'Ajābī is styled as a calligraphist while the name of Saiyyid Ḥasan Wā'iz is omitted.

10. **KHWĀJA SHIHĀB-UD-DIN 'ABDULLĀH**, *Bayānī*, who is known as *Marwārīd*, or 'the Pearl'. He is a pearl from the shell of *Khwāja Muḥammad Kirmānī*, his father. A Timurid ruler sent him as an ambassador to Qūtaif and Baḥrain, from where he brought, on his return, some very fine pearls for presentation to the King—it was for this reason that he was given the title of *Marwārīd*. His fingers have drawn a line of annulment on the *Riqā'* and the *Tawqī'* writings of the gold—penned masters (of calligraphy):

'No one has written *Thulth* like him, except Ya'qūt.'

He was an expert in playing on the *Midrāb*. . . . In his youth, he entered the service of Sultān Husain Mirzā and gradually rose to the position of an Amīr of the Court. On the death of the Sultān, he retired from the court and engaged himself in copying the Qur'ān. When the late Šāḥib Qirān (i.e. Šāh Isma'il) visited Khurāsān, he came out of his seclusion, but soon retired from service on account of an attack of *abila-i-firang*, or *Morbus galliens*. The 'Afshān' powder was invented by him. He died in 922, A.H.

11. **MAWLĀNĀ ASHRAF**. He belongs to Harzabil in 'Irāq. He writes a good hand and possesses certain excellences.

12. **MAWLĀNĀ FAQH**. He was a good-natured and Darwīsh-like person, and was a great admirer of Jāmī. Most of the books of the poet (Jāmī) are in the handwriting of the aforesaid Mawlānā.

13. **MAWLĀNĀ SULTĀN 'ALĪ**. He is so famous for his *Nasta'liq* calligraphy that it is unnecessary to write anything in his praise. . . . Although his age has exceeded sixty, yet he could write a very attractive hand. He has himself composed these two *Mathnawī* verses in which he says:

'My age is sixty-three years, more or less,
But my musk-coloured pen is still young.
I can still write in *Khafī* (minute) and
Jalī (bold) characters:
That I am the slave (of God) Sultān 'Alī.'

14. **HĀFIZ 'ALĪ**. He belonged to the Ghūrī family of Herāt. He was famous for his good disposition and fine intellect. He wrote a beautiful hand in several styles.

15. **MIRZĀ QĀSIM**, called *Madhkūr*. He is acknowledged as a master of calligraphy. He was killed by the Turks at Herāt in 932, A.H.

16. **MAWLĀNĀ SHAMS-UD-DIN MUḤAMMAD** of Kāshān. He is a young man. Besides being skilled in various arts, he is particularly proficient in Calligraphy, Rhyming, and Riddle. He has adopted the pen-name of *Nawā'ī*. While he was proceeding to India, he wrote the following *Qita'*:

' I must proceed to India, as there
 The affairs of the artists prosper.
 Generosity and munificence have departed from the
 people of the world
 And gone to the Dark Land (of India).'

17. MAWLĀNĀ MUHAMMAD. He was the son of Mawlānā Sultān Muḥammad of Astarābād. He was a very intelligent and capable youngman. He wrote a beautiful hand. He had been a student for sometime and wrote under the pen-name of *Mashrabī*. He died in the prime of his youth.

18. MAWLĀNĀ FADLĪ.¹ His birth-place is Qazvīn. He is one of the Mullāzādas of the place. His handwriting is beautiful. He is a popular figure in society.

19. MAWLĀNĀ SHĀH MAḤMŪD of Nīshāpūr. His magic-like *Qita's* give light to the eyes of the houris. He is a pupil of Mawlānā 'Abdī, but he has surpassed him in calligraphy. In spite of his great skill, he lives like a darwish and a faqir. He adopted the pen-name of *Mukhlis*.

20. MAWLĀNĀ 'ABDĪ. He is the maternal uncle of Mawlānā Shāh Maḥmūd and a pupil of Mawlānā Sultān 'Alī of Mashhad. In spite of his old age he wrote an excellent hand.... For a long time he enjoyed the honour of the service of Ḥadrat Sāhib Qirān, and two years ago (i.e. in A.H. 955) he departed to the eternal home.

21. MAWLĀNĀ ANISĪ. His original home is Khwārazm. He used to live with Sultān Ya'qūb. He wrote such beautiful *Nasta'liq* that people considered him to be a rival of Mawlānā Sultān 'Alī of Mashhad. In fact he has carried this (i.e. *Nasta'liq*) calligraphy to the boundary of magic.

22. MAWLĀNĀ 'ABDUL KARĪM PĀDShĀH. He is the brother of Mawlānā Anisī. He got the name of 'Pādshāh' as, owing to mental derangement, he styled himself as Pādshāh, or the King, and gave strange orders to the people. However, he was a faqir and did not do harm to anybody. He wrote beautiful *Nasta'liq* in the style of his brother. In the end, he began to write on his *Qita's*: 'Written by Khudā, or God', or 'Written by Razzāq, or the Sustainer' (i.e. God), but usually he wrote, 'Written by Pādshāh, or the King'.

23. HĀFIZ BĀBĀ JĀN. He belongs to Turbat, in Khurāsān. He wrote a beautiful *Nasta'liq* hand and was highly skilled in engraving and gilding on bones.² Among the musical instruments, he played so well on the 'ūd and the Shiturghū that no one has, in my opinion, surpassed him. He was very polite and darwish-natured. He had a fine taste for Prosody and Riddles. He died at Tabriz in A.H. 944.

¹ His account is omitted in the A.S.B. MS.

² In the A.S.B. MS. 'engraving and gilding on bones' omitted.

24. MAWLĀNĀ MĀLIK. He comes from Tabriz, but some say that he belongs to Qazvin. He wrote a beautiful hand in several styles. He has a perfect knowledge of music and poetry and is not bad in riddles as well.

25. MAWLĀNĀ IBRĀHĪM. He comes from Astarābād. He writes a very good hand in several styles and is particularly proficient in *Ta'liq*.¹ It was for this reason he held the post of the Munshī of the shrine of Imām Ridā, at Mashhad. May peace and benedictions be on the dwellers of that city.

26. MAWLĀNĀ DŪST MUHAMMAD of Kūshwān. Kūshwān is a village in the vicinity of Herāt. The Mawlānā is young, amiable, and jovial. He writes beautiful *Nasta'liq*. He also possesses proficiency in Poetry, Prosody, and Riddles. At times he engages himself in *Ṣaḥḥāfi* (book-binding) also. His pen-name is *Kāhī*.

27. MUḤIBB 'ALĪ, the flute-player. He comes from Herāt. He plays the flute nicely and writes good *Nasta'liq*. He has lived in my company for a long time.

28. MAWLĀNĀ MAJNŪN, the *Chap*-writer. He is one of the witty people of Herāt and is without a rival in the world in *Chap* calligraphy. He had invented a new style of calligraphy and named it *Khaff-i-Tawāmān*. The style of this *Khaff* was such that he made two figures with his pen and these two verses could be read in them. He wrote a versified *Risāla* in my name in the metre of *Lailā-va-Majnūn*. He had discussed therein the rules of calligraphy, the quality of the pen that should be used, the process of colouring the paper, and other allied subjects. I remember the following verse (from the *Risāla*) regarding the colouring of paper :

The colour which makes the letters shine,
Is the water of Hina and Saffron.

29. MAWLĀNĀ BANĀ'Ī (or, Bannā'ī). His birth-place in Herāt. He adopted this pen-name as he was the son of a mason. He was well-known for his *Tasawwuf*, fine penmanship, jovial temperament, and good recitation. He has composed a number of *Risālas* on music and *Adwār*, a branch of Mathematics.

30. SHAWQĪ of Yazd. He is one of the descendants of Khwāja Rāshid. He is an agreeable companion and very human. He writes a beautiful *Nasta'liq* hand. He is perfect in *Inshā* and held the post of *Inshā navīs* under me.

31. MAWLĀNĀ AḤMAD TABASĪ, known as Mawlānā Aḥmad Tūnī. He was the tutor of Hadrat Ṣāhib Qirān (i.e. Shāh Tahmāsp), but having proved disloyal to him, left that exalted threshold and went away to some other place. Some malcontents told Amīr Khān, the then ruler of Herāt, that the Mawlānā had satirized him. The Amīr and the people of

¹ In A.S.B. MS. ' *Nasta'liq* '.

Herāt bore some grudge against the Mawlānā on account of the following verse which he had written as a *Shahr Āshūb* :

Ahmad Ātūn is sometimes a *Shī'a* and sometimes a *Sunnī*,

Like the Ghiliwāzī which is a male for six months and a female for (the next) six months.

Amīr Khān summoned him to his court and, when the charge had been proved against him, had his hands and tongue cut. On that occasion he recited the following verse : --

از دست احمد طبسی روز عاجزا دست بریده من و دامان مصطفی

After that he began to speak. He also practised writing with his left hand and it is said that he could write a more beautiful hand than before.... The people who had seen the Mawlānā before his tongue was cut state that formerly he used to stammer but, since the incident, he had become quite normal. He survived the ordeal for four years and died at Herāt in A.H. 932.

32. MAWLĀNĀ FAIDĪ. He was the brother of Hāfiz Bābā Jān and wrote a beautiful hand.

33. GULSHANĪ of Kāshān..... At present he lives at Shūshtar. He writes a good *Nasta'liq* hand.¹

34. HAYĀTĪ. . . . His father had a desire to train him for the post of a Qāḍī but he had no taste for that. He became a calligraphist and a Munshī.

35. 'ABDULLĀH SHIHĀBĪ (or, Shahānī). He is one of the Mamlūks of Qazvīn. He was a talented person and acquired proficiency in various branches, as for instance in calligraphy, *Inshā*, and Poetry.

36. 'ĀYATĪ of Isfahān. He was in charge of a Maktab and wrote beautiful *Nasta'liq*.

37. NĀZUKĪ of Tabriz. He earns his livelihood by sewing caps. He writes very fine *Nasta'liq*.

38. MAWLĀNĀ RUSWĀ'Ī of Hamadān. He is the brother of Mawlānā Adwār. For a long time he earned his livelihood as a calligraphist but, later, he turned a Qalandar.

39. WAFĀ'Ī of Simnān. He is one of the Wazīrzādas of Simnān, but is very careless. He writes *Ta'liq* very well. He is also proficient in Arithmetic.

40. KALIMI² of Gilān. He is always engaged in improving his handwriting. He is good in *Inshā* and is also versed in certain branches of Philosophy.

¹ In the A.S.B. MS. we read :

'Writes in several styles. Nowadays he is employed as a tutor.'

² In the A.S.B. MS. : 'Gulshanī'.

41. MULLĀ JĀN of Kāshān. He was a calligraphist and had invented a new *Khat*, called *Shikasta-busta*. It was like this: two thin leaves, a portion of each of which was black, were placed on each other, and then the writing became visible. He was a wonderful composer too—he could compose one thousand verses in one night!

42. MAWLĀNĀ MAḤMŪD ṢABŪRĪ.¹ He works as a calligraphist at Tehrān.

43. MAWLĀNĀ WAFĀ'Ī of Tūn. He was a scholar, a wit, and a penman.

44. MAWLĀNĀ NIGĀHĪ.² He was born at Herāt. He works as a calligraphist and takes opium four times a day.

45. MUḤĪ of Shīrāz. He wrote a beautiful hand. He was also a preacher and an eloquent speaker.

46. MAWLĀNĀ 'AINĪ. He is one of the calligraphists of Shīrāz. Few can write so swiftly as he does.

47. RĪPĀ'Ī, the dumb. He comes from 'Irāq. He was very swift as a calligraphist and could transcribe one thousand verses in one day. He was a good judge of poetry. He went away to Asia Minor and, since then, nothing has been heard of him.

48. MIR DŪST TĀRAMĪ. He is one of the Khādims of the tomb of Imām Ridā. He belongs to the Mirzās of Chaghtā and held a high post under the Emperor Bābur.... He earns his livelihood as a calligraphist.... He writes a beautiful hand.

49. YŪSUF BEG TŪSHMĀL. He belongs to the Ayyūbaghlī tribe—a section of the Chaghtā'īs. Formerly, he was a messenger under the late Sāhib Qirān (i.e. Shāh Isma'īl), but, at present, he holds the post of a Tūshmāl under the reigning Sāhib Qirān (i.e. Shāh Tahmāsp). He leads a pure and pious life. He has a wonderful capacity for study and can read several scripts, such as *Kūfī*, *Khatā'ī*, and *Naṣrī* (Latin). In spite of his onerous duties he does not remain idle for a single moment, and is always engaged in the transcription of books on *Fiqh*, *Ḥadīth*, and *Tafsīr*.

¹ In the A.S.B. MS. : 'Ṣābirī'.

² See another Nigāhī in the list of 'Gilders and Illuminators'.

*Peterson's edition**Kāśī edition*

16. 4. अनर्थाध्यवसायेन

अनर्थाध्यवसायेन (22. 7).

Corrected to अर्थाध्यवसायेन
as in S.

K only copies P, thus violating the sense, and overlooks the Note of P.

32. 5. •कैवल्य•

•कैवल्य• (44. 4).

It should be •वैकल्यं as
in S.

K copies P without considering the sense.

94. 9. वृत्त्यभावः

वृत्त्यभावः (125. 12).

It should be निवृत्त्यभावः
as in S. (90. 5).

The sense here does not permit वृत्त्यभावः.

118. 8. दूषणा न्यूनतायुक्तिः

दूषणा न्यूनता युक्तिः

It should be दूषणानि
न्यूनतायुक्तिः which clearly
follows from the *līkā*.

K copies P.

Of Stecherbatsky's edition of the Sanskrit text of the Nyayabindu with the Nyāyabinduṭīkā (published fourteen years after his edition of the Tibetan translation of the work) we may say that though there are a few misprints, it is a definite improvement upon the edition of Peterson and proves the importance of Tibetan for the student of later Buddhist philosophy and also the necessity of a collation with the Tibetan translation of Buddhist Sanskrit texts whenever such translation is available.

The Asiatic Society of Bengal has now reprinted Peterson's edition. The reasons for doing so have been explained in the foreword to this re-issue. The reprint can, however, be justified on another ground besides those which have been set forth in the preface. Various treatises on Indian logic and philosophy, e.g., *History of Indian Logic* by Vidyābhūṣana, *Indian Logic and Atomism* and *Buddhist Philosophy* by Keith, *A History of Indian Philosophy* by Dasgupta, and *Indian Philosophy* by Radhakrishnan, refer to the original *Bibliotheca Indica* edition. In his *Central Conception of Buddhism and the Meaning of the Word Dhamma*, Prof. Stecherbatsky has himself referred to the *Bibliotheca Indica* edition long after his own edition was published. Therefore, from the point of view of reference, the importance of the *Bibliotheca Indica* edition of the Nyāyabindu and the Nyāyabinduṭīkā is indisputable.

It would, however, be unfair to ignore or to disguise the fact that Peterson's edition contains a number of mistakes

which, unless corrected, are likely to perplex students who read it from beginning to end. I have therefore thought it desirable to make a collation of the texts edited by Peterson and Stecherbatsky with due regard to their Tibetan translation as presented in the latter's edition in the *Bibliotheca Buddhica* series.

The following notes may be regarded as an appendix to the re-issue of the *Bibliotheca Indica* edition. I have also attempted to notice all departures from the first edition, some for the better and some for the worse, which have slipped into the reprint, notwithstanding the attempt to make it an exact copy of the first edition. I have discussed only a few variants and it appears that in most cases of difference Stecherbatsky's readings are to be preferred to those of Peterson.

When this paper was in the press, Professor Stecherbatsky's *Buddhist Logic*, Vol. II (*Bibl. Buddhica*, XXVI, 1930) reached me. This volume contains an appendix, No. VI (pp. 433-436), giving corrections to the texts of the Nyāyabindu and its *ṭikā* as printed in the *Bibliotheca Buddhica* edition (Vol. VII, 1918). Though some of these corrections had*already been noticed by me independently, I have thought it desirable, for the sake of completeness, to insert in my own paper references to all these corrections by Professor Stecherbatsky. These references have been inserted according to their appropriate places in the *Bibliotheca Indica* edition and have all been marked with asterisk.

The numeral references to Stecherbatsky's Sanskrit text after the passage corresponding to page 103 of the *Bibliotheca Indica* edition, are to the numbers of Pariccheda and Sūtra, and not to the page numbers, as before that passage.

The following abbreviations have been used in the present paper.

P₁—Peterson's edition of the Sanskrit text of the Nyāyabindu and the Nyāyabinduṭikā in the *Bibliotheca Indica* series, 1889.

P—Reprint of the above, 1929.

S—*Bibliotheca Buddhica* edition, Sanskrit text, by Prof. Stecherbatsky, 1918.

T—The Tibetan Translation of the text, as edited by Prof. Stecherbatsky in the *Bibliotheca Buddhica* series, 1904.

A and B—The two manuscripts referred to by Peterson.

N—Critical Note appended to P₁ and P.

C—Corrections to the text of Nyāyabindu and *ṭikā* in Appendix VI of *Buddhist Logic*, Vol. II, by Prof. Stecherbatsky.

I am grateful to Mr. Johan van Manen for his suggestion to me to undertake the work and for his advice and encouragement whilst executing this somewhat monotonous task.

COLLATION

P	P ₁	N	T
Page 1, line 5 सम्यग्ज्ञान- पूर्विका सर्वथादिना	id.	id. (Page 1, line 6)	अनं ननां नतिं वेसां नं वेवेसां गुं नं वा वेवेसां नसां (Page 2, line 4) suggests सम्यग्ज्ञानेत्थादिना which is supported by the Nāyabhindutikāṭṭipani, Bib. Bud. (3. 10)
1. 7. खाभिघेय०	id.	id. (1. 7)	वेवेत्तं नसां गुं नं (2. 7) supports B which reads खाभिघेय०.
2. 10. प्रयोजनमिदम्; read प्रयोजनपदम् as Peterson sug- gests in N.	id.	प्रयोजनपदम् (2. 8)	वेवेसां नतिं वेवेसां नं (3. 14) confirms the emendation of Peterson.
2. 12. ततः	id.	ततश्च (2. 10)	वेवेसां नं (3. 17) agrees with P.
2. 13. संशयव्युत्पादनम्	id.	संशये व्युत्पादनम् (2. 10-11)	
2. 16. प्रकरणमिदम्	id.	id. (2. 12)	नसां गुं वेवेत्तं नं (4. 2) omits इदम् as in B.

2. 22. ०प्रदेश; misprint for ०प्रदेश. See N which in- correctly refers to l. 23 instead of l. 22. id.
3. 4. याख्यातुणाम् (2. 20) id.
3. 13. अभिधेयादिषु (3. 2) उक्तेषु लभिधेयादिषु supports S.
3. 13. तथा तु (3. 3) तथा (5. 14) agrees with P.
3. 20. पुरुषं (3. 8) श्लेषां पुरुषस्य (6. 6) suggests पुरुषान्.
4. 9. लिङ्गसंबन्धं; read ०संबन्धं as emended in N. ददेषां यो ददं ददेषां यो भवेत् यो भवेत् सति (7. 16-17) supports S.
4. 18. भावाभावनियतम् should be भावाभावनियतम्. Compare कश्चिदनियतो भावाभावयोः (4. 14). भावाभावनियतम् (3. 22-23)
4. 19. अर्थक्रियासमर्थप्राप्तिः ० अर्थक्रियासमर्थप्राप्तिः • दैर्घ्येन दानं कृत्वा यत्नेन (7. 18) sup- ports S.
5. 3. ०संसर्गः; N suggests संसर्गः. लक्षणां केषां दूषणं यत्नेन (8. 8) sup- ports ०संसर्गः.

***9. 14. विप्रतिपत्तिनिरासार्थम्**

id.

id. (7.12)

དེ་བཅུ་ཉེ་མ་འབྲིལ་བ་སྟེས་བས་ཀང་
 ཟེས་སྟེ་དཔག་པ་བསལ་བ་ཡིན་པོ་གྱུ།
 རྟོག་པ་དང་བལ་བ་སྟེས་བ་ཅི་ལོག་པར་
 རྟོགས་པ་བསལ་བའི་ཕྱིར་རོ། (16. 20-

17. 2) supports B which adds (after विप्रतिपत्तिनिरासार्थं) तथाऽभ्यान्तग्रहो-
नायनुमाने निवर्त्तिते कल्पनापोढ्यदृश
विप्रतिपत्तिनिरासार्थम् . C also adds
the following insertion after
विप्रतिपत्तिनिरासार्थम् in accordance
with MSS. and the Tib. translation :
*tathābhvrāntagrahaṇen-āpy anumānam
nirastam syāt, kalpanāpodha-graha-
ṇam tu vipratipatti-nirākaraṇārtham.*
But B seems to be in greater agree-
ment with the Tib.

P	P ₁	S	T
9. 15. खप्रतिभासेऽनर्थेऽथव- सावेन	id.	खप्रतिभासेऽनर्थेऽथाथव- सावेन (7. 13)	खप्रतिभासेऽनर्थेऽथाथव- सावेन (17. 3-4) supports S.
10. 4. प्रौलनम्; corrected to मौलनम् in N.	id.	मिलनम् (7. 22)	Compare B in N. ऊनम् (18. 2) supports मिलनम् or मौलनम्.
10. 5. संख्येऽभिधानाभिधेये; here <i>Sandhi</i> is grammatically wrong.	id.	संख्ये अभिधानाभिधेये (7. 23)	
11. 6. ननियमसेतु०; misprint for ननियमहेतु०.			
11. 12. ओचज्ञानं	id.	id. (8. 21)	ननये क्खामरवेसाम् (20. 5) may also support the reading ओचविज्ञानं (B).
11. 18. नज्ञानं	id.	id. (9. 2)	क्खामरवेसाम् (20. 16) may also support नविज्ञानं (B).

12. 12. तथोक्ताः; misprint
for तथोक्ताः. तथोक्ताः (9. 16)
12. 14-15. •जातादावप्ति० •जातेऽपि० (9. 17)
12. 17. तथाविधं id. id. (9. 19)
13. 9-10. तदनयोर्न परस्पर-
सङ्कारित्वम् id. id. (10. 13-14)
14. 20. तथा ; misprint for
यथा। यथा
15. 3. स्फुटाभत्वप्रकर्षपर्यन्तः;
read as S. स्फुटाभत्वं प्रकर्षपर्यन्तः
(11. 22)
15. 3. ज्ञातं id. ज्ञातं (11. 23)
- *15. 3-4. भाव्यमानस्य id. id. (11. 23)
- भावाभावे... ३ (22. 10) supports S.
- नेत्रं बुद्धिः श्रोत्रं च (22. 15) supports
B which reads तत्तथाविधं.
- नदिं द्रुमं देवमृषिं नदिं नं नदिं नं नदिं नं
उपनिषद् (24. 8) follows
B which omits न.
- नृन् (27. 13) supports S.
- नक्षत्रं द्रुमं पुनरिति नक्षत्रं (27. 14) sup-
ports C suggesting the addition of
अर्थस्य after भाव्यमानस्य.

P	P ₁	S	T
15. 11. संप्रति ; misprint for संप्रति.	संप्रति		
15. 13. ०स्फुटाभत्वात्सर्वि०	id.	०स्फुटाभत्वादेव च सर्वि (12. 7)	
15. 16. परित्तमाद्यर्थः	id.	id. (12. 9)	अहस'शुद्धेमास'दति'केमा'हु । (28. 14) follows B which reads परित्तमाप्ति- वचनम्.
15. 21. प्रमाणास्य विषयो	id.	विषयः प्रमाणास्य ; wrongly printed as विषयो प्रमाणास्य (12. 16).	
16. 4. अनर्थाश्ववसायेन ; cor- rected to अनर्थाश्ववसायेन in N.	id.	अनर्थाश्ववसायेन (12. 20)	
16. 20. स च	id.	स एव च (13. 13)	
17. 3. भावः । तस्मादस्तु० ; read भावस्तस्मात् । वस्तु०.	id.	भावः, तस्मात् । वस्तु० (13. 18)	
18. 6. तस्मादेतद् ; read तस्मात् । एतद् as in S (14. 21).	id.		

- *18. 9. अर्थाद् id. id. (15. 2) माहुः न सः पुनति नो न सः (33. 18) supports C suggesting the insertion of
ग्राह्याद् before अर्थाद्.
*18. 10. भवति । स एव id. id. (15. 3) C drops the *cheda* before स एव.
18. 13. अर्थदर्शनं id. id. (15. 5) नो न सः दुःखेन (34. 4) supports अर्थ-
प्रदर्शनं (B).
18. 16. सादृश्यम् id. id. (15. 8) महुः न सः नाना (34. 10) agrees with B
which reads यस्यादृश्यम् .
19. 11. ०संवेदनरूपम् ; put a stop after it as in P₁.
19. 12. ज्ञानस्य id. ज्ञानस्येति (15. 22) त्रिंशः (35. 18) supports S.
19. 19. ननु id. न तु (16. 5)
20. 3. ०रूपत्वम् ; रूपं (B) is suggested in N. दः नो नो (36. 16) supports ०रूपत्वं.
21. 1. व्याख्यातुम् id. व्याख्यातुकामः (17. 1)

P	P ₁	S	T
28. 17. अचेति एषु	id.	अचेतिषु (24. 16) ; misprint for अचेतिषु.	
*29. 15. तस्याप्रतिबद्धं	id.	id. (25. 15)	तस्याप्रतिबद्धं agrees with C suggesting प्रतिबद्धं. (57. 8)
*29. 18. प्रतिबद्धः सः	id.	id. (25. 17) ; C inserts न before सः.	
29. 18. अप्रतिबद्धविषयं	id.	अप्रतिबन्धविषयम् (25. 17)	
32. 3. प्राप्तार्थः	id.	प्राप्तोऽर्थः (28. 6)	
32. 5. कैवल्यं	id.	कैवल्यं (28. 7)	तस्याप्रतिबद्धं (63. 11) agrees with S. Sense also requires कैवल्य here.
*32. 17. संसर्गिण भासमाने	id.	id. (28. 19)	C in accordance with B adds भूतले before भासमाने. But Tib. འདྲི་བ་སྒྲུབ་པ་ན་ (64. 13) agrees with the original reading.

33. 10-11. संस्कारे	वर्तमाने	चामूठस्युति-	id.	चामूठस्युतिसंस्कारे वर्तमाने (29. 8)
33. 18.	घटेऽमूठः			घटे मूठः (29. 14)
34. 2.	अर्थः		id.	अर्थे; misprint for अर्थः (29. 18)
34. 21.	०प्रवर्तिन्युपलब्धिः; this is evidently wrong. Read as in S.		id.	०प्रवर्तिन्युपलब्धिः (30. 9)
37. 21. as in P ₁ .	विनाशः; read विनाशः		विनाशः	
40. 2-3.	ज्वलितोरूप०		id.	ज्वलितरूप० (35. 6)
40. 20.	कार्यं corrects P ₁ .		कार्ये	
41. 19.	गम्यते		id.	गम्यते (36. 19) •
41. 21.	जायते		id.	जातम् (36. 20-21)
42. 9.	विधिनिषेध०		id.	विधिं निषेधं (37. 9)

सिद्धिमात्रा etc. (68. 5) agrees with S.

P	P ₁	S	T
*44. 1. तिथ्यति यस्मात्	id.	id. (38. 21); C drops the <i>cheda</i> after तिथ्यति, but there is none after it in S.	
45. 10. ज्ञानज्ञेयस्वभावा	id.	न ज्ञानज्ञेयस्वभावा (39. 23)	ज्ञेयस' द' द' ज्ञेयस' मुदि' न' न' स' यिक्क' (90. 10) confirms S.
46. 3. तस्मिन्	id.	id. (41. 4)	द्वयस' गु' (92. 10) agrees with A which reads लिङ्गम् in place of तस्मिन्.
46. 4. आख्यायते		आख्यायत (41. 4); mis-print for आख्यायते.	
46. 4. अनेनेति त्रिरूपं लिङ्गम्	id.	अनेन त्रिरूपलिङ्गम् (41. 4-5)	अनेस' कु' न' न' स' न' द' द्वयस' (92. 10-11) supports S.
46. 6. परस्मादिदं	id.	परस्मायिति (41. 5-6)	मा' न' न' मु' के' न' यि' न' स' (93. 2) supports S.

	P	P ₁	S	T
51. 19.	सुथो; misprint for सुद्धो	सुद्धो		
52. 11.	नान्तरीयकतया	id.	नान्तरीयकतया (47. 9)-	
*52. 16.	कृतकत्वम्	id.	कृतकत्वम् (47. 13); obvious misprint for कृतकत्वम्. cf. C.	
53. 6.	स्वभाव इह	id.	स्वभाव एव इह (48. 2)	
53. 13.	अथो; misprint for अर्थो	id.		
53. 15.	Separate च्यतिव्या० as in P ₁ .			
54. 10.	स्वभावः । स एव च साध्यः	id.	यः स्वभावः स एव च साध्यः (49. 3-4)	सः चरिष्येति॥ ने० अ० अक्षरान्तरं न० अक्षरे (110. 3) supports P.
54. 14.	अनुगन्तव्यः	id.	अवगन्तव्यः (49. 9)	कुर्वन्तव्यः (110. 13-14) sup- ports S.

54. 15. तथा ; read यथा id. (49. 10)
as in P₁.
54. 19-20. कार्यकारणानिश्चयो
ह्यवश्यकर्तव्यः id. कार्यकारणभावनिश्चयो
ह्यवश्यं कर्तव्यः (49. 15)
- *55. 3. असत्त्वनित्यत्तिष्ठ । सत्त्वम् id. (50. 6) ; C drops the
cheda before सत्त्वम्.
55. 6. हेतुरपि id. हेतुरपि न भवेत् (50. 8)
 मङ्गलं लोकासंगुणं यत्तदसंख्यं न
 (112. 14) supports S.
55. 12. नित्यस्य *नित्यस्य (50. 15) ~ नित्यस्य (113. 10) supports S.
print corrected in P.
- *55. 13. उक्तः । त्रिष्वपि id. (50. 16) ; C drops
the *cheda* after
उक्तः.
56. 10. ते id. omitted (51. 16)
56. 19. सर्वस्य id. सर्वस्य प्रतिबद्धस्य
(52. 5)
 लोकासंगुणस्य उक्तं (117. 5) sup-
ports S.

58. 12.	• लभ्यत इत्यादिना	id.	• लभ्यते चेत्यादिना (54. 2)	नृत्तं कं यत् नृत्तं नृत्तं नृत्तं नृत्तं नृत्तं नृत्तं नृत्तं नृत्तं नृत्तं नृत्तं नृत्तं (121. 16-122. 1) suggests a slightly different reading: नोपलभ्यते चात्रोपलब्धिलक्षणाप्राप्त इत्यादिना .
58. 18.	उपलभ्यते	id.	स उपलभ्यते (54. 10)	नृत्तं नृत्तं नृत्तं (122. 17) supports P.
59. 2.	सामर्थ्यासितः	id.	सामर्थ्यम् । अतः (54. 14)	नृत्तं नृत्तं नृत्तं । नृत्तं नृत्तं (123. 9) sup- ports both P and S.
60. 7.	प्रत्यासन्नभूतः	id.	प्रत्यासन्नः । ततः (56. 4)	नृत्तं नृत्तं नृत्तं नृत्तं (126. 17-18) sup- ports S.
60. 8.	ननु	id.	न तु (56. 5)	
60. 11.	यद्येव	id.	यद्येवम् (56. 9)	नृत्तं नृत्तं नृत्तं नृत्तं (127. 7) supports S.
60. 18.	तत्सिद्धः	id.	तत्सिद्धः (56. 18)	नृत्तं नृत्तं नृत्तं (128. 8) supports S.

P	P ₁	S	T
*60. 22. आहोपुखविकया		आहोपुखविकया (56. 21); misprint for आहोपुखविकया. cf.C.	
61. 2. एव	id.	एव तस्य (56. 22)	देहिने (128. 18) supports P.
61. 10. सामर्थ्योक्तत्वात्	id.	सामर्थ्योक्तत्वात् (57. 7-8)	सामर्थ्योक्तत्वात् (129. 12) confirms S.
61. 11. सोऽधि०	id.	सोऽर्धोऽधि० (57. 10)	देहिने (129. 16) supports S.
61. 22. तद्वदत्र यत्प्रमाणे	id.	तद्वदत्र प्रमाणे (58. 1)	देहिने दुःखं भावेन (131. 6) sup- ports S.
62. 7. परार्थमात्रेण	id.	परार्थमात्रेण (58. 6)	
62. 12. वादिनः	id.	वादिना (58. 9)	
62. 16. प्रदर्शनाय	id.	प्रतिपादनाय (58. 14)	
62. 18. चैतैः	id.	च तैः (58. 16)	

P	P ₁	S	T
65. 22. परिसमापथ	id.	परिसमापथ (61. 14)	
66. 4. बोध्यते	id.	बोध्यते (61. 19)	ཡང་བཟོད་ན་ནི་ (140. 5) supports S.
66. 22. ०ख	id.	०खेति इदं : । तत्र विज्ञानं चक्षुर्मादि- विज्ञानम् । (63. 1)	ཆེ་ཞེས་རྒྱས་དུ་བཟོད་ན་ལ་ཞེས་བཤད་ཤིས་ པ་ནི་མིག་ལ་སྟོན་པས་བཞུད་པའོ । (142. 15) supports S.
67. 1. ०स्थितरूपम्	id.	०स्थितं रूपम् (63. 2)	
67. 10, 11. ०सत्तया	सत्त्वाया ; obvious misprint.		
67. 11. यन्मरणहेतुः	id.	यन्मरणं हेतुः (63. 9)	
67. 21. खं रूपम्	id.	खरूपम् (63. 19)	
69. 5. ०पातविभ्रमः	id.	०पातनिकुञ्जे विभ्रमः (65. 4)	གྲུག་པའི་རི་རྒྱུལ་ལ་མེད་སྟེ་པ་ (147. 11) supports S which follows B.

69. 6. अस्मात् id. अन्यस्मात् (65. 5) नावृत्तं (147. 10-11) supports S which is undoubtedly a better reading.
69. 17. धर्मिबद्धस्य id. धर्मिसंबद्धस्य (65. 16)
- *69. 18. तथा परस्य id. id. (65. 18); C reads it as तथापरस्य.
- *70. 1 (bis) अनित्यत्वं id. द्वाः (149. 13) agrees with C substituting नित्यत्वं for अनित्यत्वं.
- *70. 4. अनित्यं id. द्वौ (149. 18) agrees with C reading नित्यं in place of अनित्यं.
- *70. 6. अनित्यः id. द्वाश्चै (150. 3) agrees with C correcting अनित्यः to नित्यः.
70. 11. विपक्षैकदेशशब्दवृत्ति id. विपक्षैकदेशवृत्ति (66. 10-11) • शेषेषु सति दुर्गस्य श्रु दुर्गस्य महिनां यः अदिनायेकं (150. 14-15) agrees with S.

P	P ₁	S	T
70. 22. रागः	id.	रागाः (66. 22)	
*71. 9. सन्देह०	id.	सन्देह० (67. 10); mis- print for सन्देह०. cf. C.	
71. 13. असद्रूपमपि	असद्रूपमोऽपि; obvious misprint.	असद्रूपमोऽपि (67. 15)	असद्रूपमोऽपि... झुति। तेन गुणः (153. 14-15) supports S.
71. 14. एतन्न	id.	omitted (67. 16)	प्रत्यस'उद्'गतिव' etc. (154. 4) supports S.
*72. 16. ०स्थानयोग्यो	id.	id. (68. 14)	नान्न'क्षेत्रस'सु'रु'चन' (156. 8) does not support C which suggests ०स्थानाधानयोग्यो in place of ०स्थानयोग्यो.
72. 21. तावृषो	id.	तद्वेषो (68. 18)	
73. 1. अन्वकारे देशे	id.	अन्वकारदेशे (68. 19-20)	
73. 22. कश्चिदिष्टो	id.	कश्चिद्वृष्टो (69. 13)	
74. 4. परस्परं परिहारः	परस्पर- परिहारः	id. (69. 21)	

74. 12. नीलमभावम् id. नीलं खाभावं (70. 4) (159. 13)
 supports P.
- *74. 15. अर्थस्तस्य id. अर्थो (70. 7); wrongly printed as अर्थो cf. C. द्रव्यैर्नो (159. 18) agrees with S.
74. 17. यतः id. अतः (70. 8) द्रव्यैर्न (160. 2) can support both P and S.
74. 19. न । नियताकारः id. अनियताकारः (70. 9) द्रव्यैर्न (160. 4) supports S.
- *74. 21. एवं नित्यत्वे पिशाचाः id. एवं नित्यत्वपिशाचाः (70. 11); C adds च after एवम्. (160. 7-8) confirms S.
75. 13. भिन्नप्रवृत्तिविषयौ id. भिन्नविषयौ (70. 21) • युनः (161. 8) supports S.
- *75. 18. अवृष्टस्य id. सिद्धं (161. 18) supports C suggesting अवृष्टस्य for अवृष्टस्य.

P	P ₁	S	T
75. 22. ०विधानेन ; read ०विधाने न as S.	id.	विधाने न (71. 7)	
*76. 7. वक्तृत्वविरोधिविरुद्ध- विधिः	id.	वक्तृत्वविधिर्विरुद्धविधिः - (71. 13-14) ; wrong- ly printed as ०विधिः; cf. C.	वृत्तान्तिर्नानासात्तन्मात्रानुमाना (163. 1) supports S.
*76. 15. वा कारणस्य	id.	id. (72. 2)	नु'स'भिर'न' (164. 1) supports C suggesting वाकारणस्य in place of the original reading.
76. 16. ०स्तेति	id.	०श्च (72. 3)	
*76. 20. ०रूपादि०	id.	id. (72. 7)	हु'न' (164. 13) supports C suggesting ०रूप० in place of ०रूपादि०.
76. 21. द्वयोः	id.	द्वयोरिति । द्वयोः (72. 10)	हु'न'न'ति'स'वे'स'गु'न'हो'स'ने (164. 18) suggests an original like द्वयो रूपयोरित्याह .
77. 3. संवन्धः ; read संबन्धः as in P ₁ .		संबन्धः	

77. 12.	साधयतः	id.	साधयतः । ततः (73. 6)	दे'मस'न' (166. 17) supports S.
78. 19.	साधयतु वा	id.	साधयतु (74. 18)	
78. 21.	साथ्ये	id.	साथ्यम् (74. 19)	नक्षन्'मस'सु'न' (170. 10-11) supports S.
79. 1.	विशेषे	id.	विशेषो (74. 21)	
79. 5.	ननू०	id.	न नू० (75. 1)	
79. 6.	असिद्धौ विरुद्धः	id.	अविपर्ययसिद्धौ विरुद्धः (75. 4); ob- vious misprint for विपर्ययसिद्धौ विरुद्धः.	म'मन'न'मस'न' (171. 6) supports P.
79. 16-17.	सहात्मना		यद्येति सहात्मना (76. 2)	
80. 2, 8.	यकाभ्याम्	id.	याभ्याम् (76. 7, 11)	
*80. 4.	अवियुक्तम्	id.	id. (76. 8)	म'मन' (174. 2) agrees with the original reading of S which has been corrected to वियुक्तम् in C.

P	P ₁	S	T
80. 7. हेतुविरुद्धः	id.	हेतुविरुद्धः (76. 11)	
80. 20. तदन्यत्	id.	अन्यत् (77. 3)	मात्रिके (175. 13) supports S.
82. 3. इत्याह	id.	इत्याशङ्क्याह (78. 15)	झुम'नु'दे'मास'ना' (178. 11) supports S.
82. 7. सोऽपरस्य	id.	स एवापरस्य (78. 21)	
82. 7. भावे	id.	भाव० (78. 21)	अदे'पद' (179. 6) seems to support S.
82. 8. भवति । निश्चयस्या- व्यभिचारौ	id.	भावनिश्चयस्याव्यभिचारौ (79. 1)	अदे'पद'दे'सा'ना'सी'मसु'ना'म'अ'ने'ने' (179. 7) agrees with S.
83. 10, 11. ०नैकान्तिकः	id.	०नैकान्तिक इत्याह (79. 21, 22)	
83. 14. ०भ्यां च परः	id.	०भ्यामपरः (80. 4)	झुम'ना'मात्रिके (181. 19) supports S.
83. 18. यदसि०	id.	यदसि० (80. 9)	मा'नी'के' (182. 10) supports S.
84. 7. अनुमानसङ्कावः	id.	अनुमानस्य संभवः (80. 21)	

P	P ₁	S	T
87. 12. तत्तत्	id.	न तत् (84. 9)	नेनेनेनेनेने (191. 9) agrees with S.
87. 12. व्याप्यदृष्ट्या०	id.	व्याप्यस्य दृष्ट्या० (84. 9)	
87. 15. व्यक्तेरन्तरालं	id.	व्यक्त्यन्तरालं (84. 11)	
87. 17. चोपलभ्यते; an obvious mistake.	id.	नोपलभ्यते (84. 12-13)	
88. 13. गमकस्तद्वचनम्	id.	गमकः । ततस्तद्वचनम् (85. 4)	
88. 21. तत्तथा	id.	तथा (85. 10)	
89. 2. गतार्थत्वम्	id.	गतार्थम् (85. 13)	नेनेनेनेनेनेने (194. 14) agrees with S.
*89. 5. पुनस्तत्	id.	id. (85. 23); C inserts a <i>cheda</i> after it.	
89. 17. इत्याह । ... लक्षणे	id.	तदित्याह । ... लक्षणे (86. 9)	
90. 1. लक्षणे	id.	लक्षणेति (86. 13)	नेनेनेनेनेनेनेने (197. 11) supports S.

90. 19.	०प्रतिपत्त्यर्थम्	id.	०प्रतिपत्त्यर्थः (87. 1-2)
91. 1.	०साधनस्य		०साधनस्य (87. 4)
91. 4.	०प्रदर्शिनः; misprint for ०प्रदर्शिनः.	id.	०प्रदर्शनः (87. 7)
91. 6.	इत्याह	id.	कस्मादित्याह (87. 8)
91. 20.	असर्वगतं द्रव्यपरिमाणं	id.	འདྲིལ་པས་ཤིན། 11) supports S. (199. 10-
91. 22.	षट्स्येति	id.	असर्वगतद्रव्यपरिमाणं (88. 1)
91. 22.	तथा	id.	षट्स्य (88. 3)
92. 15-16.	ततो वृत्तत्वस्य रागादि- मत्त्वं विहितम्	id.	तद्येति (88. 7)
93. 15.	०नियत्ये ।	id.	རྟེ་བཞིན་དུ་ (201. 15) supports P. Tib. (203. 11) agrees with S.
		id.	omitted (88. 19)
		id.	०नियत्ये ततः कृतकत्वं- मनियत्ये नियतमेव । (89. 13-14)
		id.	རྟེ་བས་ན་ལུས་པ་ཉིན་མེ་རྟེ་བ་པ་ཉིན་པ་ རྟེ་བ་པ་པོ་ན་ཡིན་ནོ་ (205. 6-7) sup- ports S.

P	P ₁	S	T
94. 4. वैधर्म्येण	द्वैधर्म्येण; misprint corrected in P.		
94. 9. लक्ष्यभावः	id.	निर्लक्ष्यभावः (90. 5)	ལོག་པ་མ་ཡིན་པ་ཏྟེ་ (206. 18) sup- ports S.
*94. 16. इत्यादिहेतुः	id.	id. (90. 16); C sug- gests इत्यादि हेतुः.	
96. 9. निर्लक्ष्तिः	id.	व्यालक्ष्तिः (92. 7)	
96. 18. °पलखण्डेति ; ob- viously wrong.	id.	°पलखण्ड इति (92. 17)	
97. 16. °सादृश्यभावेन	id.	°सादृश्यभावेन (93. 10)	མི་འདྲ་བ་པ་ཅན་གྱི་སྒོ་ནས་ (216. 4-5) supports P.
98. 9. साध्यनियतं हेतुं	id.	साध्यनियतहेतुं (94. 1)	
98. 12. हेतुप्रदर्शनाय	id.	हेतुप्रदर्शनाय हि; (94. 7); wrongly printed as हेतुप्र०.	
98. 18. °नेति न	id.	°नेति (94. 11)	Tib. (218. 14) agrees with S.

98. 19-20. स्वकार्यकरणात् ; id. सन्धीप्रवक्ष्येऽनुपदिष्टैः (218.
(94. 13) 16) agrees with S.
98. 21. दूषणानि कानि दृष्ट्यानि id. दूषणानि कानि दृष्ट्यानि
(94. 16)
98. 22. ऽबध्यते । न ये० ; as id. उच्यतेऽनये० (94. 16)
printed the text is meaningless.
99. 2. उद्धावने id. उद्धावकं (94. 20) ननुऽपिऽहेमाचन्द्र (219. 15) seems
to support S.
99. 5-6. निश्चयनिबन्धात् id. निश्चयप्रतिबन्धात् (220.
4-5) supports S.
- *99. 6. ऽभावौ id. ऽभावौ (95. 2); mis-
print for ऽभावौ. cf.
C.
99. 7. उक्ता दूषणाभासाः id. उक्तं दूषणम् ... दूषणा-
भासा इति (95. 3, 5) शुक्लपुत्रैः चैकैः ॥ ... शुक्लपुत्रैः
चैकैः चैकैः । (210. 6-7, 10) sup-
ports S.

P	P ₁	S	T
103. 6-9. इन्द्रियज्ञानखविषया- नन्तरविषयसहकारिणोन्द्रियज्ञानेन समनन्तरप्रत्ययेन जनितं तत् । मनोविज्ञानं सर्वं चित्तचैत्ताना- मात्मसंवेदनं भूतार्थभावनाप्रकर्ष- पर्यन्तं योगिज्ञानं चेति ; to be read with proper punctuations as in S.	id.	इन्द्रियज्ञानं । (Chap I, Sūtra, 8) खविषया- नन्तरविषय...तन्मनो- विज्ञानम् । (I. 9) सर्वं चित्तचैत्तानामात्म- संवेदनम् । (I. 10) भूतार्थ...योगिज्ञानं चेति । (I. 11)	निर्वं (31. 5) supports C adding एव before वस्तुनः.
*103. 12. लक्षणात्वादस्तुनः	id.	id. (I. 15)	
104. 8-9. तदभावश्चेति त्रिरूपाणि च । त्रौण्येव च लिङ्गानि ; to be read with proper punctuations as in S.	id.	तदभावश्च । (II. 10) त्रिरूपाणि च त्रौण्येव लिङ्गानि (II. 11)	
104. 9. स्वभावकार्यं	id.	स्वभावकार्यं (II. 12)	
104. 12. यः स्वभावः	id.	omitted (II. 15)	
104. 13. यत्प्रत्यक्षः	id.	यः प्रत्यक्षः (II. 15)	

- *104. 14. स्वसत्तामात्रभाविनि id. स्वसत्ताभाविनि (II. 16) रन् नहिं नै रन् अन् द्वा उन् नु न्नु द्वा
(53. 1) agrees with P. cf. C.
105. 6. ०सिद्धिरपि id. ०सिद्धिः (II. 26)
105. 13. उपलब्धिद्वयः; obvi- उपलब्धिलक्षण० id. (II. 32);
ous misprint for उपलब्धिलक्षण०.
105. 18. इति id. omitted (II. 34)
106. 4. इति id. omitted (II. 37)
106. 10. इति id. omitted (II. 40)
106. 19-20. स्वभावव्यवहार० id. (106. 19) स्वभावभावव्यवहार० (85. 14) supports P.
(II. 46.)
- *107. 4. ०भावसिद्धिः id. ०भावसिद्धिः (II. 47); C अन् द्वा द्वा नै रन् नु न्नु न्नु
suggests ०भावभाव-
सिद्धिः. (87. 16) agrees with the
emended reading of C.
107. 5. ०मानानिर्दृति० id. ०माननिर्दृति० (II. 48)
108. 16. तत्त्वभावत्वात् id. तस्यैव तत्त्वभावत्वात्
(III. 18)

P	P ₁	S	T
109. 1. धूम०	id.	यत्र धूम० (III. 23)	
* 109. 4. वैद्यम्यवतः	id.	वैद्यम्यवतः (III. 25); misprint for वैद्यम्यवतः. cf. C.	
109. 8. असंख	id.	संख (III. 26)	
109. 10. चाक्षीति	id.	चाक्षि धूम इति (III. 27)	
109. 11. साध्ये न; read as साध्येन.	id.	साध्येन (III. 29)	
109. 13. साध्यभावे	id.	साध्याभावे (III. 31)	नञ्नुन'दान'गु'त'सेद्'न् (116. 1) agrees with S.
109. 18. सदेवान्वय०; mis- print for तदेवान्वय०.	तदेवान्वय०	id. (III. 34)	
110. 1. वश्यवाक्य०	id.	वश्यं वाक्य० (III. 34)	
110. 4. प्रयोगेऽवश्यं	id.	प्रयोगे नावश्यं (III. 36)	
110. 13. इष्टो निराकृतः	id.	इष्टोऽनिराकृतः (III. 40)	

110. 16.	साध्यत्वेनैवेष्टं	id.	साध्यत्वेनेष्टं (III. 43)
*110. 18.	एतेन	id.	एतने (III. 46); mis-print for एतेन. cf. C.
110. 18.	स्थितसाधनम्	id.	स्थितः साधनम् (III. 46)
111. 5.	०र्थताऽनेनोक्तं	id.	०र्थता साध्या । अनेन नोक्तं (III. 49)
111. 13.	सिद्धस्य	id.	एवं सिद्धस्य (III. 56)
111. 16.	इष्टो निराकृतः	id.	इष्टोऽनिराकृतः (III. 56); wrongly printed as ०क्त.
111. 17.	पक्षलक्ष्यमवयवं	id.	पक्षलक्ष्यमनवयवं (III. 56)
112. 12.	०क्षमं	id.	०क्षभ्यं (III. 67)
112. 13.	असपक्षो सत्त्वस्य	id.	असपक्षोऽसत्त्वस्य (III. 68)

समुक्तादिः कुप्यताः त्रैलोक्ये (148. 18)

supports S.

देवदत्तः कृतः (138. 4) agrees with S.

P	P ₁	S	T
*112. 14. अनित्यत्व०	id.	id. (III. 69)	दृग्ना'न'ति'त् (149. 8) agrees with the emendation of C suggesting नित्यत्व in place of अनित्यत्व. See Nyaya-praveśa (G.O.S. vol XXXVIII), p. 3. l. 19.
113. 6. अन्यभावः । अभावाद्	id.	अन्यभावेऽभावाद् (III. 75)	
113. 7. भाववत्	id.	भावभाववत् (III. 77)	
*113. 10-11. वा कारणस्य	id.	id. (III. 81)	चु'स'यै'न'स' (163. 17) supports C suggesting वाकारणस्य.
113. 13. सत्त्वस्य सपक्षे	id.	सत्त्वस्यासपक्षे (III. 86)	
113. 17. तत्र	id.	ननु (III. 89)	
*114. 12.... प्राणादेरसिद्धिसिद्धिः । तस्मा- ज्जीवच्छरौरसम्बन्धौ प्राणादिः सात्सकादनात्मकाच्च सर्वस्माद्वावृत्त- त्वेनासिद्धेः । ताभ्यां न व्यतिरिच्यते ; it appears to be the proper reading.	id.	...प्राणादेरसिद्धिसिद्धिः । तस्मा- न व्यतिरिच्यते । (III. 103) तस्मा- ज्जीवच्छरौरसम्बन्धौ प्राणादिः सात्सका- दनात्मकाच्च सर्वस्मा- द्वावृत्तत्वेनासिद्धिः । (III. 104)	ज्ञे'न'न'ज्ञे'न'स'न'स'न'न'ति'दु'त् (III. 103) ज्ञे'न'स'न' etc. (III. 104) supports P which is also borne out by the commentary. C too accepts P.

- *114. 16-17. **परभावान्तरौयक-
त्वात्** id. **परभावान्तरौयक-
वत्त्वात्**; (III. 108);
°वत्त्वात् is a mis-
print for °कत्वात्,
corrected in C.
- *115. 8. **सभावोपसंहारसंभवात्** id. (III. 217); C
corrects it to
**सभावस्योपसंहार-
संभवात्**.
115. 9. **कार्यपलम्बेषु** id. **कार्यानुपलम्बेषु**
(III. 118)
115. 9. **तत्र** id. **अत्र** (III. 119)
116. 2-3. **व्यावृत्तरूपम्** id. **व्यावृत्तौ रूपम्**
(III. 123)
- *117. 2-3. **यथा सर्वज्ञाः** id. **यथा सर्वज्ञाः** (III. 131);
read **यथासर्वज्ञाः**;
The emendation in
(°) should be *yathā-*
sarvajñāḥ and not
yathāśarvajñāḥ as
printed. cf. Bud-
dhist Logic, Vol. II,
p. 243, f.n. 2.

T

S

P₁

117. 7. असर्वज्ञता०; misprint
for असर्वज्ञता.

117. 13. व्यावृत्तिः । सदिग्धा;
read as S.

*117. 20. स वक्ता

व्यावृत्तिः सदिग्धा
(III. 132)

id. (III. 134); this is
recommended in C to स न
वक्ता but it is inaccu-
rate. cp. Buddhist
Logic, Vol. II, p.
247, f.n. 2, which
gives an admissible
reading. But it is
to be noted that the
printed text is not
wrong; for यत्रावौत-
रागतत्वं नास्ति न स वक्ता
is identical in sense
with यत्र वौतरागतत्वं
नास्ति स वक्ता (स
न वक्ता अस्ति भवतो-
त्यर्थः).

118. 1. व्याहृत्या ; as printed,
it is meaningless. id. व्याहृतं यो (III. 134) ;
यो is a misprint for
यः. omitted (III. 136)
118. 3. वैधर्म्येणापि id. दूषणानि न्यूनतायुक्तिः
(III. 138)
118. 8. दूषणा न्यूनता युक्तिः id. अमृतं (III. 141)
118. 10. अनुभूतं id.
124. 10. l. 22 ; it should be
l. 21 owing to the rearrange-
ment of types.
124. 26. p. 18 is a misprint
for p. 28.
127. 10. दृश्यह ; read with
a hyphen after it.
127. 19-20. l. 22, l. 23 ; read
l. 21 and l. 22 respectively.
128. 2. च आख्यं ; read as in
P₁. च आख्यं
130. 22. चायस्य ; read as in P₁. चायस्य

T

S

P	P ₁
131. 9. विद्युदाकाशघटवत् corrects P ₁ .	विद्युदाकाश- घटवत्
131. 22. व्यंघ्रकारः; read as in P ₁ .	व्यंघ्रकारः
132. 20. तत्कोडीः; read as in P ₁ .	तत्कोडीः
133. 23. वक्तृदोषात्; misprint for वक्तृदोषात्	id.

The Endoskeleton of *Labeo rohita* (Ham. Buch.).

By DAYA SHANKAR SARBAHL.

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INTRODUCTION.

The Rohu, *Labeo rohita* (Ham. Buch.), is studied as a type of Bony Fishes in almost all the Universities of India, but as there is no adequate and suitable description available of this fish, I am working out its anatomy with a view to publish a memoir on this type. In this paper, I am giving a reasonably complete account of the endoskeleton of Rohu and hope to publish an account of the soft parts before long. I hope that this work will prove useful to students working on this type and that it will stimulate further work.

The work was carried out during my tenure of the Research Fellowship awarded to me by the University of Lucknow for 1930-1933.

I take this opportunity of expressing my deep sense of indebtedness to my Professor, Dr. K. N. Bahl, at whose suggestion I took up this work and who has guided the work at every step of the way and helped me with his criticism and advice. He has also found time to read through and correct the manuscript. Without his help this work would not have been possible. I also wish to express my grateful thanks to Mr. M. L. Bhatia for the pains he took in seeing the plates take their final form.

THE ENDOSKELETON.

The endoskeleton of the adult fish Rohu is more or less completely ossified and is made up of both replacing and investing bones. It consists of : (1) an *axial portion*, including (a) the *vertebral column* and the associated ribs and the skeleton of the median fins, and (b) the *skull* : and (2) an *appendicular portion*, including the skeleton of the paired fins and their girdles.

I. The Axial Skeleton.

(A) *The Vertebral Column.*

The vertebral column (figs. 1-8) is completely ossified and consists of 37 to 38 *amphicæalous* vertebræ. It is divisible into (1) an anterior trunk region in which the vertebræ bear movable ribs, and (2) a posterior caudal region, the vertebræ of which do not bear ribs but are provided with inferior hæmal arches.

(1) THE TRUNK VERTEBRÆ.

These are always twenty-one in number. The structure of a trunk vertebra is best studied by examining any one of the seventeen vertebræ from the fifth to the twenty-first.

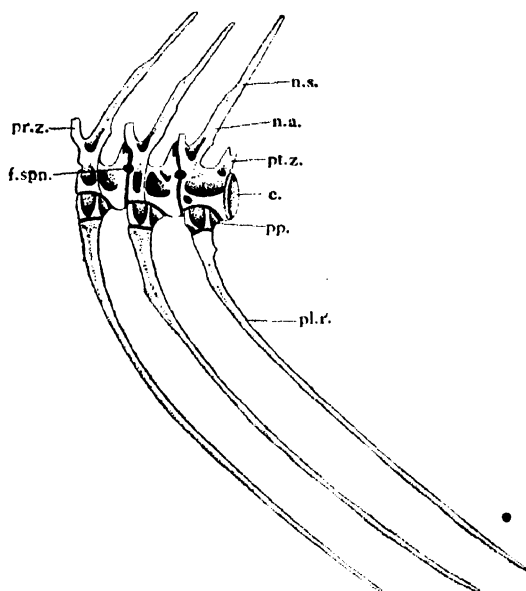


FIG. 1. Twelfth, thirteenth, and fourteenth trunk vertebrae seen from the left side. (\times ca $1\frac{1}{2}$). *c.*, centrum; *f.spn.*, foramen for the spinal nerve; *n.a.*, neural arch; *n.s.*, neural spine; *pl.r.*, pleural rib; *pp.*, parapophyses; *pr.z.*, pre-zygapophyses; *pt.z.*, post-zygapophyses.

A typical trunk vertebra, e.g. the *fifteenth* (fig. 2), consists

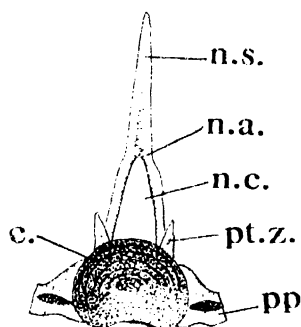


FIG. 2. Posterior view of a trunk vertebra. (\times ca $\frac{1}{2}$). *c.*, centrum; *n.a.*, neural arch; *n.c.*, neural canal; *n.s.*, neural spine; *pp.*, parapophyses; *pt.z.*, post-zygapophyses.

of a short deeply biconcave *centrum*, the two concavities communicating in the young by a narrow canal, the *notochordal canal* which perforates the body of the centrum; in the adult, however, this notochordal canal becomes closed. The edges of the adjoining centra are united with one another by connective tissue ligaments and the biconvex space thus enclosed between them is filled with the remains of the notochord.

The centrum is watch-glass shaped both on its anterior and posterior surfaces like the centra of other Elasmobranchii and is therefore described as *amphicelous*.¹ On the dorsal surface of the body of the vertebra, there is a large median

¹ The character of the surfaces by which the vertebral centra articulate with one another varies in different fishes. When both the

depression, the deepest point of which reaches almost the centre of the vertebra. A similar median depression lies on the ventral surface, while on the sides there are two depressions, a dorso-lateral and a ventro-lateral. From the antero-lateral borders of the median dorsal depression arise a pair of processes directed obliquely backwards, which enclose the spinal cord and unite above to form the *neural arch*. The neural arch is produced dorsally into a long backwardly directed *neural spine*. The base of the neural arch is thickened and broadened and gives rise anteriorly to a pair of small blunt processes, projecting upwards and forwards called the *pre-zygapophyses*. These articulate with a corresponding pair of processes—the *post-zygapophyses*—projecting from the postero-lateral edges of the vertebra in front. The post-zygapophyses are directed upwards and backwards. The pre-zygapophyses and post-zygapophyses of two contiguous vertebrae enclose between them a pair of small foramina, one on each side, through which the spinal nerves pass out during life.

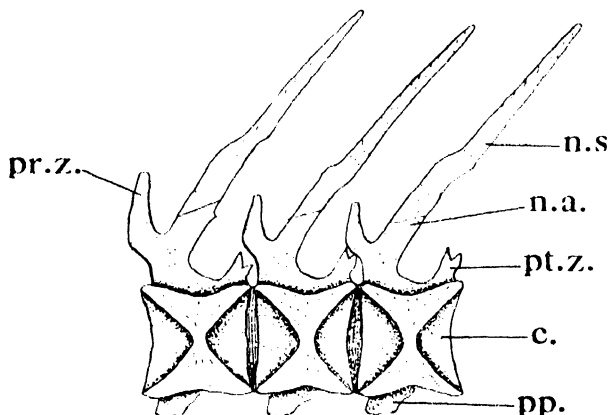


FIG. 3. Longitudinal section of three trunk vertebrae. ($\times ca\ 2\frac{1}{2}$). *c.*, centrum; *n.a.*, neural arch; *n.s.*, neural spine; *pp.*, parapophyses; *pr.z.*, pre-zygapophyses; *pt.z.*, post-zygapophyses.

From the ventro-lateral surfaces of the centrum arise a pair of short processes—the *parapophyses*—to each of which a rib is attached by ligaments. The parapophyses of the anterior thirteen or fourteen vertebrae—except the first four vertebrae—are distinct and separate and fit into the ventro-lateral depressions. In the last 3 or 4 trunk vertebrae, however, the para-

anterior and posterior surfaces present deep concavities and look very much like a watch-glass, the vertebra is described as *amphicalous*, e.g. in *Amia*, *Polypterus* and the Teleostei. When the centrum is convex in front and concave behind, the vertebra is said to be *opisthocalous*, e.g. in *Lepidosteus*; while a vertebra with a concave anterior surface and a convex posterior surface is designated *procalous*: such a centrum is not found in Fishes but the centra of the frog *Rana* afford a good example.

pophyses are firmly fused with the anterior edges of the ventro-lateral depressions and pass outwards and downwards and slightly backwards. These posterior vertebræ also bear ventrally at their postero-lateral ends small spine-like processes directed backwards and downwards called the *postero-ventral processes*.

The first four trunk vertebræ (figs. 4 and 5) are highly modified since they serve to connect the air-bladder with the ear of the fish, and also afford surfaces for attachment of the highly developed constrictor muscles in connection with the inferior pharyngeal bones. Besides, the fourth vertebra forms a basal support for the *septum transversum* separating the pericardial from the peritoneal cavity. These four trunk vertebræ also differ

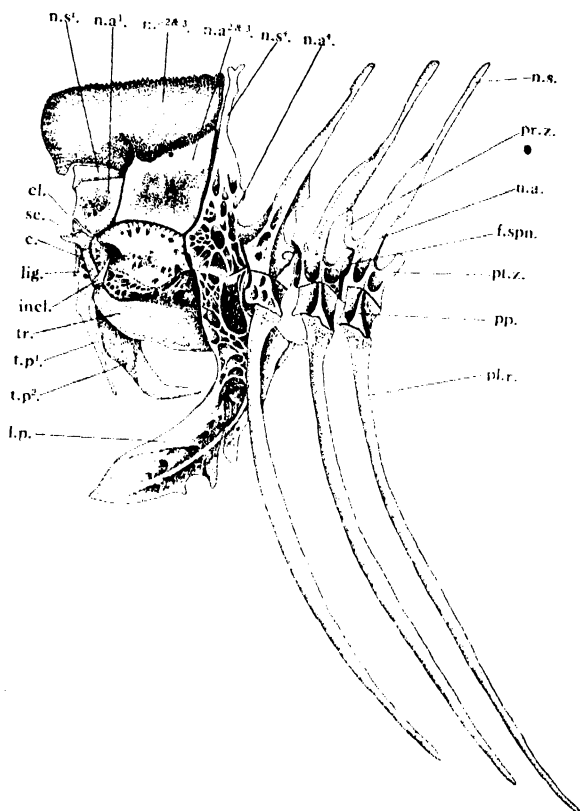


FIG. 4. First seven trunk vertebræ seen from the left side. ($\times ca 1\frac{1}{3}$). c., centrum; cl., claustrum; f.spn., foramen for the spinal nerve; incl., intercalarium; lig., ligament; l.p., lateral process arising from the centrum of the fourth vertebra; n.a. 1-4, neural arches of the first, second, third, and fourth vertebræ; n.s. 1-4, neural spines of the first, second, third, and fourth vertebræ; pl.r., pleural rib; pp., parapophyses; pr.z., pre-zygapophyses; pl.z., post-zygapophyses; sc., scaphium; tr., tripus; t.p.1-2, transverse processes of first and second vertebræ.

from the rest in the absence of ventro-lateral processes or parapophyses.

The first vertebra is connected with the skull and articulates with the outer edge of a deep conical depression at the posterior end of the basi-occipital bone. It has a very short cylindrical centrum, the anterior face of which is flat, but the posterior is concave. A pair of well-defined transverse processes project horizontally outwards. The neural arch is formed by two small bony pieces on each side—the *claustrum* and the *scaphium*—capped on the top by a median bony piece which forms a key-stone completing the arch above and giving off a short flattened neural spine. The *claustrum* and the *scaphium* form the two anteriormost elements of the chain of 'weberian ossicles'—a series of small bones which connect the air-bladder of the fish with its internal ear. The centra of the second and third vertebrae become fused together and are represented by a single large centrum—in fact the largest centrum in the entire vertebral column. Both its anterior and posterior surfaces are deeply concave. The anterior half of the centrum, representing the centrum of the second vertebra, bears a pair of transverse processes which are longer and stouter than those of the first vertebra and are situated immediately behind the latter. The posterior half of the centrum which represents the centrum of the third vertebra carries on each side a flattened triangular bone—the *tripus*—which forms the fourth and the most posterior element of the weberian apparatus and possibly represents the transverse process of the third vertebra. Stretching between the *scaphium* in front and the anterior end of the *tripus* behind, there is a stout ligament on each side in which is embedded a very small bony nodule with a short inwardly directed spine-like process—the *intercalarium*—which forms the third of the series of weberian ossicles—thus completing the chain in the following order: the *claustrum*, the *scaphium*, the *intercalarium*, and the *tripus*.¹ Of these, the *tripus* presses against the anterior wall

¹ *The Homology of the Weberian Ossicles.*

Various attempts have been made to trace out the exact homology of these ossicles.

The *claustrum* and the *scaphium* as already noted complete the neural arch of the first vertebra. The *scaphium* has always been homologized with the neural arch of the first vertebra by various writers (Müller, 1853; Nusbaum, 1881; R. Wright, 1885; Bridge and Haddon, 1893), but the *claustrum* has been regarded either as a neural spine of the first vertebra or as a part of the skull. Hora (1922) regards the *claustrum* as an additional piece of the neural arch of the first vertebra.

The *intercalarium* has usually been regarded as a modified neural arch of the second vertebra (Müller, 1853) but Sagemehl (1885) was of opinion that it represented the rib of the second vertebra. According to Wright (1885) the neural arch of the first post-occipital region (Goodrich, *Studies on the Structure and Development of Vertebrates*, p. 592) forms the *intercalarium*. According to Bridge and Haddon (1893), this ossicle is a compound bone consisting of two elements—the neural arch of the

of the air-bladder while the scaphium fits on the membrane covering the posterior paired openings of the atrium—a median posterior extension of the perilymph cavity of the ear which lodges the median sinus endolymphaticus, and is itself contained in the ex-occipital bones of the skull. The neural arches of the second and third vertebræ are fused together like their centra, the combined neural arch consisting of three distinct pieces—two ventro-lateral and a dorsal. Each ventro-lateral piece is a large bony plate which articulates ventrally with the body of the centrum and dorsally with the dorsal piece. The dorsal

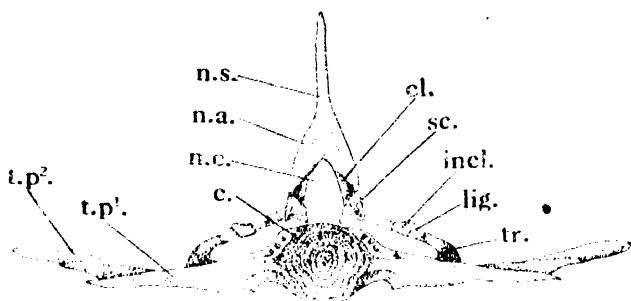


FIG. 5. Front view of the first and part of the second trunk vertebra; showing the relative position of the weberian ossicles. ($\times ca\ 2\frac{1}{2}$). *c.*, centrum; *cl.*, claustrum; *incl.*, intercalarium; *lig.*, ligament; *n.a.*, neural arch; *n.c.*, neural canal; *n.s.*, neural spine; *sc.*, scaphium; *t.p.1*, transverse process of the first vertebra; *t.p.2*, transverse process of the second vertebra; *tr.*, tripus.

piece is a large flattened bone forming the dorsal portion of the neural arch with which are fused the flattened neural spines of the two vertebræ. These fused neural spines form a large and flattened keel-like structure which extends forwards and backwards, and articulates with the supra-occipital bone in front and with the neural spine of the fourth vertebra behind. The inwardly directed spine-like process of the intercalarium fits into the notch present along the anterior margin of each ventro-lateral piece of the two neural arches.

The fourth vertebra is very well-developed. Its centrum is amphicæalous. Anteriorly its neural arch and spine abut against the fused neural arches and spines of the second and third vertebræ. On each side of the centrum arise a pair of stout

second vertebra and its transverse process. According to Hora, the intercalarium represents a part or whole of the neural arch of the second vertebra.

The tripus has been homologized with either the transverse processes of the third vertebra or its ribs (Müller, 1853). Wright holds that the hæmal arch (probably including the rib of the first post-occipital segment) forms the tripus. According to Hora, the tripus is a compound bone formed by the coalescence of three distinct elements, the transverse process and rib of third vertebra and the rib of the fourth vertebra.

processes—the lateral and the ventro-mesial—which are flattened at their distal ends. Of these, the lateral are stouter than the ventro-mesial processes. These processes approximate ventrally towards the middle line and together form a sort of vertical wall immediately behind the basi-occipital bone. The anterior end of the air-bladder rests firmly against this vertical wall. These processes forming the vertical wall probably represent the transverse processes and the ribs of the fourth vertebra.

(2) THE CAUDAL VERTEBRÆ.

The *caudal region* comprises sixteen or seventeen vertebræ. A typical caudal vertebra (fig. 6), like that of a trunk vertebra,

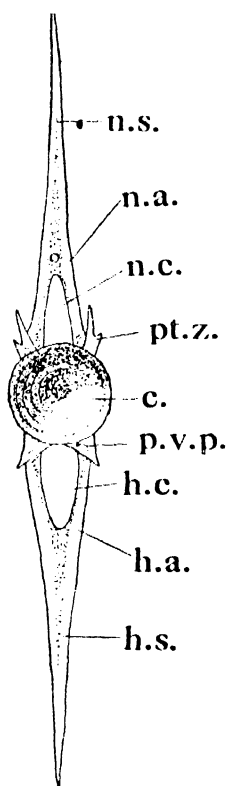


FIG. 6. Posterior view of a caudal vertebra. ($\times ca\ 2\frac{1}{4}$). *c.*, centrum; *h.a.*, haemal arch; *h.c.*, haemal canal; *h.s.*, haemal spine; *n.a.*, neural arch; *n.c.*, neural canal; *n.s.*, neural spine; *pt.z.*, post-zygapophyses; *p.v.p.*, postero-ventral process.

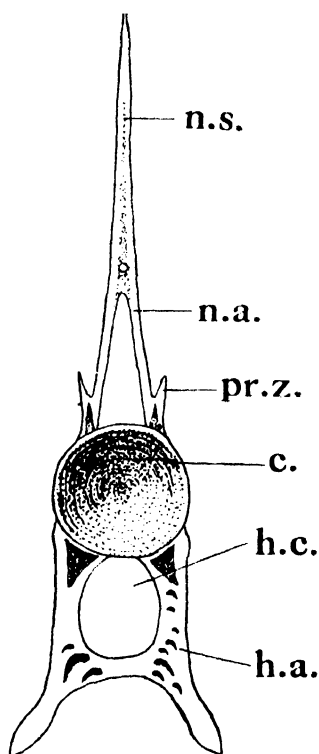


FIG. 7. Anterior view of the first caudal vertebra. ($\times ca\ 2\frac{1}{4}$). *c.*, centrum; *h.a.*, haemal arch; *h.c.*, haemal canal; *n.a.*, neural arch; *n.c.*, neural canal; *n.s.*, neural spine; *pr.z.*, pre-zygapophyses.

consists of a short deeply biconcave centrum with a median dorsal depression, a median ventral depression and two lateral depressions on each side. The neural arch arises from the antero-lateral borders of the median dorsal depression and is produced above into a long backwardly directed *neural spine*. Articulating processes—the *pre-* and *post-zygapophyses*—are present in the same position as in a typical trunk vertebra. From the antero-lateral borders of the median ventral depression arise a pair of processes directed obliquely backwards; these, unlike the parapophyses of the trunk vertebrae, pass downwards and meet in the mid-ventral line, enclosing a space through which run the caudal artery and vein. These processes are called *haemal arches*. Each haemal arch is produced into a backwardly directed *haemal spine*. The bases of the haemal arches are thickened and broadened: from their anterior borders arise a pair of small blunt processes directed forwards and downwards—the *antero-ventral processes*; similar processes arise ventrolaterally from posterior end of the centrum; these are directed backwards and downwards and are known as *postero-ventral processes* and correspond to the similar processes present in the trunk vertebrae.

The last three caudal vertebrae (fig. 12) are specially modified for the support of the caudal fin. The last caudal

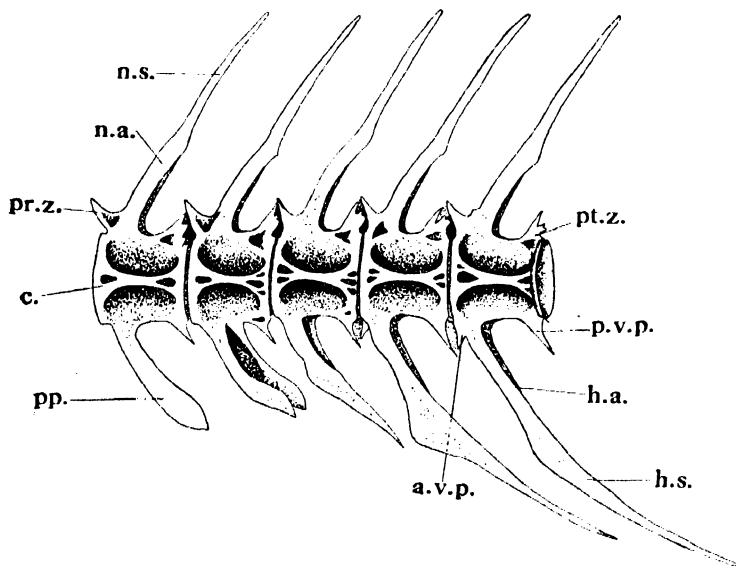


FIG. 8. The last pre-caudal and the first four caudal vertebrae seen from the left. ($\times ca\ 1\frac{1}{2}$). *a.v.p.*, antero-ventral process; *c.*, centrum; *h.a.*, haemal arch; *h.s.*, haemal spine; *n.a.*, neural arch; *n.s.*, neural spine; *pp.*, parapophyses; *pr.z.*, pre-zygapophyses; *pt.z.*, post-zygapophyses; *p.v.p.*, postero-ventral process.

vertebra is produced behind into an upturned rod-like process—the *urostyle*—which probably represents several fused centra of this posterior region. The urostyle is a solid structure with a groove on its ventral surface wherein fit the proximal ends of four flat bony rods—the *hypurals*. There is no trace of the notochord in the urostyle of the adult fish. There is good reason to believe that a hypural is typically formed by the fusion of a fin-radial with the spine of a hæmal arch (*vide infra*, p. 310 and footnote). If this be true, the anteriormost hypural would belong to the last caudal centrum with which it articulates directly, while the remaining six would represent the hæmal spines of the centra fused to form the urostyle. On the evidence of the hypurals, therefore, the urostyle would represent six fused centra. While the hæmal spines are fused with the fin-radials to form the hypurals, the neural spine of the last caudal vertebra is free and there is a separate radial lying next to it adjoining the urostyle on its dorsal side.

The penultimate caudal vertebra and the one preceding it are modified only to the extent that their neural and hæmal spines are fused with the corresponding fin-radials to form the *epurals* and *hypurals* respectively. Thus there are altogether *nine* hypurals—six belonging to the urostyle and one each to the last three caudal vertebræ—and *two* epurals, one belonging to the penultimate vertebra and the other to the vertebra preceding it.

(B) *The Skeleton of the Median Fins.*

The skeleton of the median fins consists of two sets of structures: (1) a series of parallel bony rods called the *endoskeletal radials* or *somocidia*, and (2) the *dermal fin-rays* or *dermotrichia*. The endoskeletal radials lie imbedded within the muscles of the body and are developed in the median connective tissue septum which divides the body into right and left halves. Each typical radial consists of three segments: a *proximal*, a *mesial* and a *distal* segment. The dermatrichia support the free outstanding fold of the fin and are disposed on both of its sides, giving attachment to the radial muscles. Both the radials and the dermatrichia¹ are of mesoblastic origin.

¹ The *dermotrichia* of fishes are of four different kinds. In the Elasmobranchii and the Holocephali, and probably also in the Acanthodii and the Ichthyotomi, these rays are unjointed, occasionally branched and composed of a fibrous substance of horny consistency without bone-cells. Such fin-rays are known as *ceratotrichia*. Similar rays found in larval forms and at the edges of the adult fin of the Teleostomes are known as *actinotrichia*.

Besides actinotrichia, the Teleostomes are provided with jointed, branched bony dermal rays which are developed outside the actinotrichia and are known as *lepidotrichia*.

In the Dipnoi are found jointed, branched dermal rays of bony

In *Labeo*, the dermotrichia are jointed and branched and have a bony texture, being in fact *lepidotrichia*. Besides these, a second set of delicate horny rays, the *actinotrichia*, persist at the free margins of the fins. These actinotrichia are homologous with the ceratotrichia of the Elasmobranchii and the Holocephali.

(1) THE DORSAL FIN.

The dorsal fin (figs. 9 and 10) is supported by fifteen to sixteen

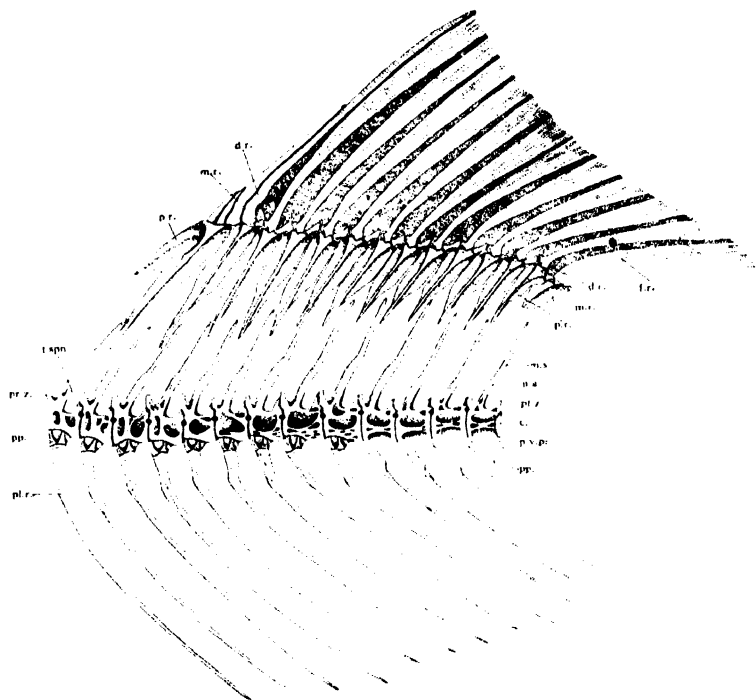


FIG. 9. Side view of the dorsal fin with the trunk vertebrae. ($\times ca \frac{1}{2}$). *c.*, centrum; *d.r.*, distal piece of radial; *f.r.*, fin-ray; *f.s.p.n.*, foramen for the spinal nerve; *m.r.*, mesial piece of radial; *n.a.*, neural arch; *n.s.*, neural spine; *pl.r.*, pleural rib; *pp.*, parapophyses; *p.r.*, proximal piece of radial; *pr.z.*, pre-zygapophyses; *pt.z.*, post-zygapophyses; *p.v.p.*, postero-ventral process.

lepidotrichia seated on fourteen radials. Of the three pieces of each radial, the proximal segment is large and more or less dagger-shaped in appearance and is sometimes called the *interspinous bone* or the *axonost*; the mesial segment is short,

consistency known as *camptotrichia*. The camptotrichia are always provided with a proximal unsegmented region, deeply imbedded in the body and covered over by the body scales. Such scales also extend over the whole or the greater part of the fins, overlying the dermal rays.

while the distal piece is still further reduced in size, being represented only by a double bony nodule. The fourteenth or the last radial is reduced and is represented by the proximal segment only. The first interspinous bone lies between the neural spines of the ninth and tenth vertebræ and the last or the fourteenth lies between the neural spines of the twentieth and twenty-first vertebræ. The proximal end of each interspinous bone is narrow, more or less pointed and lies between two neural spines—hence the name *interspinous bone*; the distal portion is broad and thickened and is really made up of four longitudinal ridges, an anterior and a posterior and two laterals—which meet along the

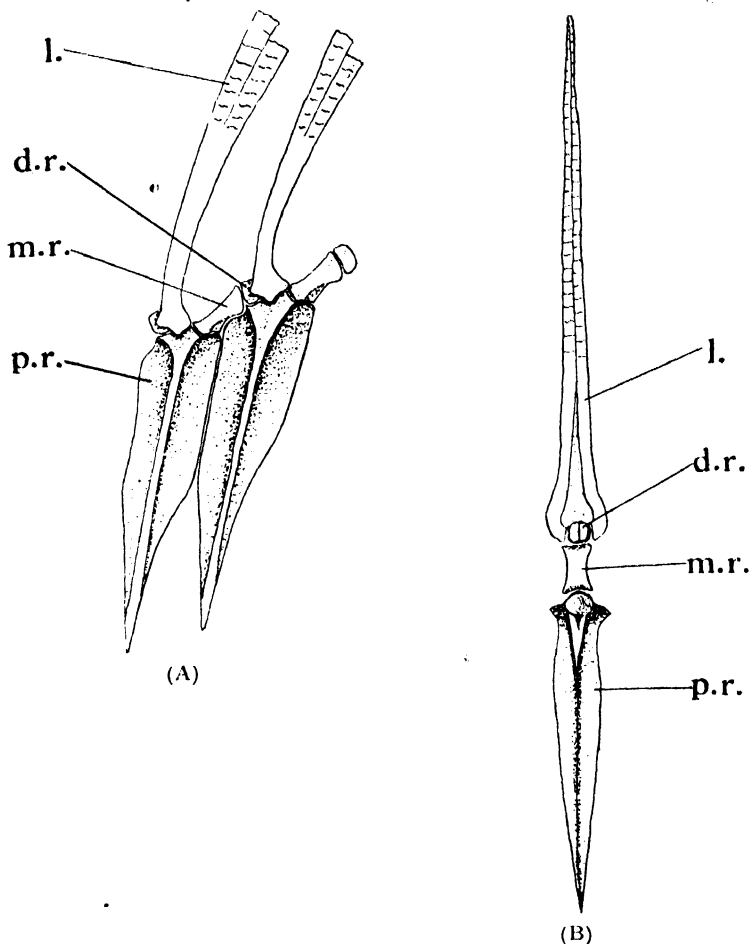


FIG. 10. (A) Two radials of the dorsal fin, seen from the left. (B) Radial and dermal ray from in front. ($\times ca 1\frac{1}{2}$). *d.r.*, distal piece of radial; *l.*, lepidotrich; *m.r.*, mesial piece of radial; *p.r.*, proximal piece of radial.

axis of the bone. The distal end of each axonost is provided anteriorly with three facets, a median and two lateral, and posteriorly with a fourth median facet. Against the two lateral facets articulate the proximal ends of the paired lepidotrichia, the mesial segment of each radial articulates with the median posterior facet, while the distal segment of each radial articulates with the antero-median facet.

The mesial segment of each radial lies obliquely between its proximal segment and the lepidotrichia belonging to the succeeding radial. At its distal end, the mesial segment carries the distal double bony nodule which thus comes to lie in connection not with its own fin-ray but with the succeeding fin-ray (fig. 10A).

The distal segment of a radial thus comes to lie between the proximal ends of the two opposing lepidotrichia of a fin-ray which really belongs to the succeeding radial of the fin. The three segments of each radial are thus disposed in an obliquely backward direction, the mesial and distal segments lying behind the proximal segment at its upper end.

Of the sixteen fin-rays, the first three are unbranched and are spine-like in appearance, increasing in size from in front backwards while the remaining are branched and are thick and rounded proximally but thin and flattened distally. Except the first two, all the rays are jointed and the jointing is more conspicuous towards the distal end than at the base of the fin, where the divisions become obliterated. The branching is due to a repeated subdivision of the growing distal ends of the lepidotrichia. The lepidotrichia are present on both sides of the fin, but as they lie closely apposed together, they form apparently a single ray, which can, however, be easily split into two longitudinally. At their proximal extremity the two lepidotrichia slightly diverge and enclose between them the distal segment of the preceding radial to which they are firmly attached by ligaments. At their distal ends, the paired lepidotrichia enclose between them slender, unjointed structures of horny consistency, the *actinotrichia*. The *actinotrichia* are very short and rarely extend along more than one or two joints of the enclosing lepidotrichia.

The first three fin-rays are carried by the laterally expanded distal end of the proximal segment of the first radial, the third fin-ray which is the largest of the three, being the fin-ray proper of the first radial element. The last or the sixteenth ray is supported by the fourteenth radial. All the remaining fin-rays are supported by the proximal segments of their corresponding radials.

(2) THE ANAL FIN.

The *anal fin* (fig. 11) consists of a series of eight fin-rays, supported by seven radials. Of the seven radials, the first

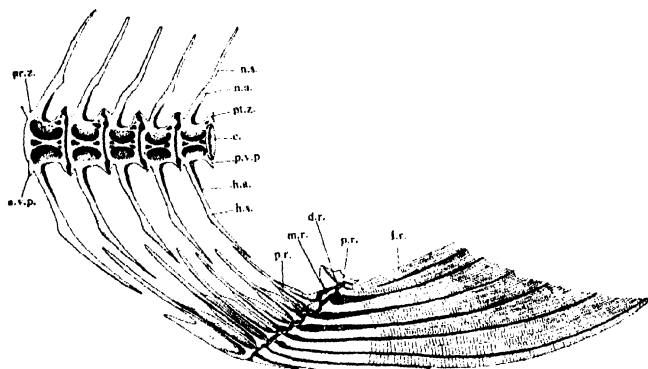


FIG. 11. Anal fin with its corresponding vertebrae. ($\times ca 1\frac{1}{2}$). *a.v.p.*, antero-ventral process; *c.*, centrum; *d.r.*, distal piece of radial; *f.r.*, fin ray; *h.a.*, haemal arch; *h.s.*, haemal spine; *m.r.*, mesial piece of radial; *n.s.*, neural arch; *n.s.*, neural spine; *p.r.*, proximal piece of radial; *pr.z.*, pre-zygapophyses; *pt.z.*, post-zygapophyses; *p.v.p.*, postero-ventral process.

six are well-developed, while the seventh is small. The structure of the radials and the fin-rays and their articulations are very similar to those of the dorsal fin. The first inter-spinous bone lies in between the haemal spines of the twenty-fifth and twenty-sixth vertebrae, while the sixth lies between the haemal spines of the twenty-eighth and twenty-ninth vertebrae. The first three fin-rays are unbranched while the rest are branched. They are transversely jointed and flexible structures with more or less flattened distal ends. The posterior rays decrease in size when followed backwards.

(3) THE CAUDAL FIN.

The *caudal fin* (fig. 12) is a large vertically expanded structure, supported by a number of flattened bony rods which lie on both the dorsal and ventral sides of the urostyle. Three bony rods—two *epurals* and a free *radial*—lie on the dorsal side of the urostyle while nine rods—the *hypurals*—lie on the ventral side of the urostyle. The epurals and the hypurals vary in size but together with the urostyle form a symmetrical vertical structure to which the fin-rays are attached in two symmetrical halves. According to Goodrich,¹ the epurals represent neural spines which have fused with the radials, while the hypurals represent haemal spines fused with the radials. It may be noted that behind the two epural bones, one separate

¹ Goodrich, E. S.—*Studies on the Structure and Development of Vertebrates*. pp. 101 and 109 (London: 1930).

radial persists and lies immediately on the dorsal side of the urostyle adjoining the free neural spine of the last caudal vertebra. The two epurals and the separate radial support the original epichordal lobe of the tail fin which is very much reduced but persists dorsally at the base of the fin. It contains only nine small fin-rays which do not reach the extremity of the fin. These rays are all unbranched but the last four are jointed. Of the nine fin-rays, four are carried by the first epural, three by the second epural while the remaining two are carried by the free radial.

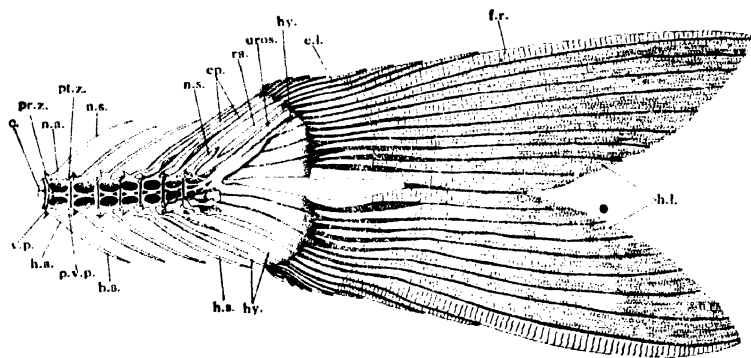


FIG. 12. Caudal fin and the caudal vertebrae. ($\times 64$ Nat. size). *a.v.p.*, antero-ventral process; *e.*, centrum; *e.l.*, epichordal lobe; *ep.*, epural; *fr.*, fin-ray; *h.a.*, haemal arch; *h.l.*, hypochochordal lobe; *h.s.*, haemal spine; *hy.*, hypural; *n.a.*, neural arch; *n.s.*, neural spine; *pr. z.*, pre-zygapophyses; *pt.z.*, post-zygapophyses; *p.v.p.*, postero-ventral process; *ra.*, radial; *uros.*, urostyle.

By far the greater part of the adult tail fin is really the original hypochochordal lobe which is supported by the urostyle and the hypurals. This hypochochordal lobe becomes secondarily divided into a dorsal and a ventral portion, the dorsal containing *ten* jointed fin-rays and the ventral *nine*. Besides these nine rays, the ventral portion carries another *seven* fin-rays which, like those of the epichordal lobe, are unbranched and do not reach the extremity of the fin. They lie at the base of the fin at its junction with the body on the ventral side.

The dorsal lobe is supported by the urostyle and *four* hypurals which lie next to the urostyle on its ventral side. The dorsalmost hypural is the smallest while the ventralmost is the largest. Of the ten fin-rays in the dorsal lobe, the urostyle carries only one, the first three hypurals carry two rays each while the last hypural carries three rays. The first fin-ray is unbranched while the remaining nine are branched.

The ventral lobe is supported by five hypurals, the first or the most posterior of which lying next to the dorsal hypurals is fused with the base of the urostyle on its ventral side; the

second hypural lies free and is only connected with the posterior end of the last centrum by means of connective tissue : the third hypural articulates directly with the ventral side of the last centrum, the fourth articulates with the centrum of the penultimate caudal vertebra, while the fifth hypural fuses with the centrum of the vertebra preceding the last two. Of the nine fin-rays which form by far the greater part of the ventral lobe, the first hypural carries two, the second and third hypurals carry three rays each while the fourth hypural carries only one ray. The first eight are branched while the last or the ninth ray is unbranched. Of the seven small fin-rays, which do not reach the extremity of the fin, two are carried by the fourth hypural while remaining five are carried by the fifth or the ventralmost hypural. The fin-rays of the caudal fin, like those of the dorsal and anal fins, are paired structures, capable of being split into two longitudinally. The two lepidotrichia of a ray diverge at their proximal ends and enclose between them the distal ends of the epurals, the urostyle, and the hypurals. Distally the two lepidotrichia enclose between them a pair of short actinotrichia. Each ray is thick and rounded proximally but thin and flattened distally.

In *Rohu* the posterior end of the notochordal axis (the urostyle) is bent upwards and therefore the epichordal lobe is very much reduced and includes very few (only *nine*) fin-rays : it is the hypochordal lobe (carrying *twenty-six* fin-rays) which forms the major portion of the caudal fin and is divided secondarily into a so-called *dorsal* and a *ventral* lobe. Externally the two lobes are equal in size and are symmetrically placed, but, as pointed above, the greater part of the skeleton of the caudal fin lies ventral to the vertebral axis and is really asymmetrically placed. Such an outwardly symmetrical tail fin is called *homocercal*.¹

¹ In some fishes the vertebral axis is continued straight into the caudal fin, thus dividing the latter into two equal and continuous lobes : a dorsal or the *epichordal lobe* and a ventral or the *hypochordal lobe*. Such a caudal fin, symmetrical both externally and internally, is called *protocercal* (diphyccercal). This condition is generally regarded as the most primitive and occurs in the Holocephali, Dipnoi, *Polypterus*, and a few *Selachii* and *Teleostei*.

In some other fishes the posterior end of the notochord along with the vertebral axis is bent dorsalwards and the fin-rays are distributed asymmetrically on the two sides of the vertebral column, the ventral hypochordal lobe of the fin being much more developed than the epichordal. Such a caudal fin, asymmetrical both externally and internally, is called *heterocercal*. Such tails are found in nearly all the *Elasmobranchii* together with the *Chondrostei*, *Lepidosteus*, and *Amia*.

In a great majority of *Teleostean* fishes, the vertebral axis is bent upwards and is shortened giving rise to a very much reduced epichordal lobe and a much enlarged hypochordal lobe. The hypochordal lobe further becomes secondarily divided into two symmetrical dorsal and ventral lobes. Such an externally symmetrical but internally asymmetrical tail-fin is called *homocercal*.

(C) *The Ribs.*

The *ribs* (figs. 1, 4 and 9) are a series of paired segmentally arranged bony rods, attached to the distal ends of the parapophyses of the trunk vertebræ. These are known as *pleural ribs*, of which there are *seventeen* pairs, the first pair being always attached to the fifth trunk vertebra. These ribs are long and slender and curve downwards and backwards between the muscles and the peritoneum, thus encircling the abdominal cavity. The proximal end of each rib is dilated, while the distal end is slender and more or less pointed. The anterior ribs are thicker and more curved than the posterior ones.

Associated with these pleural ribs are a second series of rib-like bones, the *inter-muscular bones*. These are slender curved bones, Y-shaped in appearance, the two limbs of the Y being directed proximally and the shank distally. They arise from the neural arch of each vertebra both in the trunk and caudal regions, curve outwards and upwards and slightly backwards. Their distal ends may be unifid, bifid^{*} or multifid. They serve to support the connective tissue septa between the myomeres.

The vertebræ, myotomes, and the inter-muscular bones show a typical segmental arrangement.

(D) *The Skull.*

The *chondrocranium*¹ of Teleostei, like that of most Gnathostomes, consists essentially of a posterior *basal plate* to which the *auditory capsules* become attached and an anterior *trabecular region* connected with the nasal capsules. The primitive side-wall² is very incomplete and is derived from an *orbital cartilage* which joins the auditory capsule behind and the nasal capsule in front. The visceral *palato-quadrate* arch articulates with the auditory capsule behind by an *otic process* and with the trabecular region in front by a *basal process*.

The *skull* of an adult specimen of *Labco rohita* is an extremely complex structure; it is fully ossified and is composed of a large number of both replacing and investing bones. It consists

Lastly, many Teleostei show cases of disguised or modified homocercy. In Anguilliformes, Notopteridae, Gymnarchidae, Macruridae, Zoaroidae, etc., the hypochordal fin is reduced in size while the dorsal and anal fins elongate until a continuous fin-fold is re-established. Such tails are called *isocercal*. Again, in *Pteraspis* and *Orthogoriscus*, the caudal fin completely disappears and the axis becomes truncated, resulting in what is called a *gephyrocercal* tail.

¹ Goodrich—*Studies on the Structure and Development of Vertebrates*, p. 232 (London: 1930).

² Goodrich—The pila antotica of other groups fails to develop in Teleostomes, possibly on account of the formation of a posterior eye-muscle canal', *ibid.*, p. 245.

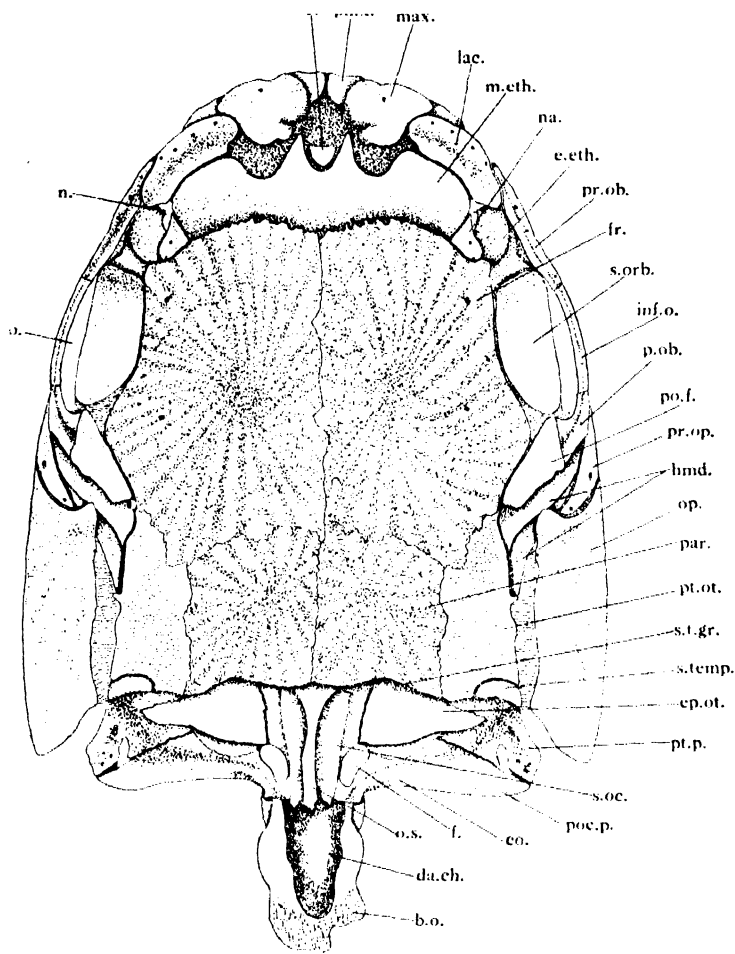


FIG. 13. Dorsal view of the skull. ($\times ca \frac{3}{4}$). *b.o.*, basi-occipital; *da.ch.*, channel lodging the dorsal aorta; *e.eth.*, ecto-ethmoid; *co.*, ex-occipital; *ep.ot.*, epiotic; *f.*, fenestra; *fr.*, frontal; *hmd.*, hyomandibular; *inf.o.*, infra-orbital; *lac.*, lacrymal; *max.*, maxilla; *m.eth.*, mesethmoid; *n.*, nostril; *na.*, nasal; *o.*, orbit; *op.*, opercular; *o.s.*, occipital spine; *par.*, parietal; *pmx.*, pre-maxilla; *p.ob.*, post-orbital; *poc.p.*, par-occipital process; *po.f.*, post-frontal; *pr.ob.*, pre-orbital; *pr.op.*, pre-opercular; *pt.ot.*, pterotic; *pt.p.*, pterotic process; *r.*, rostral; *s.oc.*, spura-occipital; *s.orb.*, supra-orbital; *s.temp.*, supra-temporal; *s.t.gr.*, supra-temporal groove.

of: (1) the *cranium*, enclosing and protecting the brain, (2) the *sense-capsules* (the olfactory and the auditory) which protect the olfactory and auditory organs, and (3) the *visceral arches*, which form the two jaws, the suspensorium for the jaws, and the hyobranchial skeleton to support the gills. Of these, the

cranium and the sense capsules are immovably united together and form one compact structure—the *skull proper*, while the *visceral skeleton* is only loosely attached to the cranium and the sense capsules in a dried skull.

We shall first describe the *skull proper* and then the *visceral skeleton*.

(1) THE SKULL PROPER.

The *skull proper* (figs. 13-18) forms an elongated wedge-shaped structure, the anterior being the thin end and the posterior the thick end of the wedge. The skull is about one and a half times as long as it is broad and at its broadest nearly twice as broad as it is deep at the posterior end. The dorsal surface of the skull is completely covered with bones; it is flat in the mid-dorsal line but slopes gradually towards the sides thus forming a more or less convex dorsal surface. The extreme posterior portion of the dorsal surface of the skull is slightly depressed forming a shallow groove—the *supra-temporal groove*—which extends from the postero-lateral margins inwards to the median *occipital spine*. The posterior surface of the skull forms a more or less straight vertical plate perforated by the median *foramen magnum* and two large oval *fenestrae*, one on either side of the median line. Ventrally the skull is incomplete; there are two large and deep depressions in the posterior region one on either side of the middle line which are surrounded by the otic bones and are filled during life with strong dorsal muscles of the inferior pharyngeal bones. Similarly, there are two more or less triangular cavities—the *orbits*—in the anterior region for lodging the eye-balls. Along the mid-ventral line, however, the skull is completely covered with bone. At the posterior end, the mid-ventral region of the skull is prolonged behind into a large vertebra-like process bearing a flat ventral plate—the so-called *masticatory process*.

The skull proper can be distinguished into: (1) a posterior *occipital region*, connected with the vertebral column; (2) the *otic regions*, comprising the bones of the *auditory capsules*; (3) an *orbito-temporal region*; and (4) an anterior *nasal* or *ethmoidal region*.

(a) *The Occipital Region*.—The occipital region forms the posterior part of the skull in the median line, being marked by the presence of a small median opening, the *foramen magnum*, through which the spinal cord is continued into the brain. The occipital region is formed of a *supra-occipital*, a *basi-occipital*, and the paired *ex-occipital* bones.

The *supra-occipital* forms the median posterior portion of the dorsal surface of the skull roofing the cranial cavity behind. It is more or less convex on its outer surface but concave on its inner. Two distinct portions can be distinguished in the supra-occipital bone, i.e. (1) a *dorsal portion* and (2) a *postero-inferior*

portion. The dorsal portion is wider at its anterior than at its posterior end and is overlapped by the *parietals* in front while laterally it adjoins the epiotic bones. From its dorsal surface arises a median vertical crest—the *occipital spine* or *keel*—which is flanked by two prominent but low crests; these converge below to form a median wedge-shaped process inserted between the dorsal ends of the two ex-occipitals. This median wedge-shaped process together with the converging portions of the low lateral crests constitute the postero-inferior portion of the supra-occipital. The supra-occipital in *Labeo* does not form the dorsal boundary of the foramen magnum but, on the other hand, is completely shut off from it.

The *ex-occipitals* are large and extensive bones, each consisting of (1) a *basal plate* forming part of the floor of the cranial cavity, (2) a large wing-like lateral *par-occipital process* which not only forms the side-wall of the cranial cavity but also forms the posterior boundary of the auditory capsule, and (3) a small *dorsal process* enclosing the foramen magnum. The basal plate of each ex-occipital is a flat piece of bone which meets the corresponding plate of the other side in the mid-ventral line and forms the hinder portion of the floor of the cranial cavity, the two basal plates together completely covering the anterior half of the basi-occipital bone. The posterior end of each basal plate presents an obliquely flattened surface by which it articulates behind with the basi-occipital: the inner surfaces of the two basal plates by which they articulate with each other are grooved and the two grooves on articulation enclose a narrow canal in which lies the *median sinus endolymphaticus*.¹ Laterally each ex-occipital is expanded into a large wing-like process, the two parts of which lie almost at right angles to each other. The outer larger part forms the main portion of the posterior vertical wall of the skull while the smaller inner part of each wing forms the side-wall of the cranial cavity and part of the inner posterior wall of the ventral cup-like hollow of the auditory region. Each wing-like process is suturally connected dorsally both with the pterotic and the epiotic. The inner surface of each wing bears a well-marked ridge which is continuous with a similar ridge on the pterotic on the one hand and the pro-otic on the other and encloses a part of the horizontal semi-circular canal of the internal ear. Besides, this wing-like portion also encloses a part of the posterior semi-circular canal. Posteriorly, on each side of the middle line, each ex-occipital gives off a small *dorsal process* which meets the corresponding process of the other

¹ In Cypriniformes, the right and left membranous labyrinths of the internal ear join across below the medulla by a transverse canal: from this canal are given off posteriorly a pair of lateral outgrowths, the *sacculi* and a median outgrowth, the *sinus endolymphaticus*. (Goodrich—*Studies on the Structure and Development of Vertebrates*, p. 591 (London: 1930).

side forming an arched bridge, which surrounds the foramen magnum both dorsally and laterally and also encloses the median wedge-shaped process of the supra-occipital. Enclosed between the lateral par-occipital process externally and the dorsal process

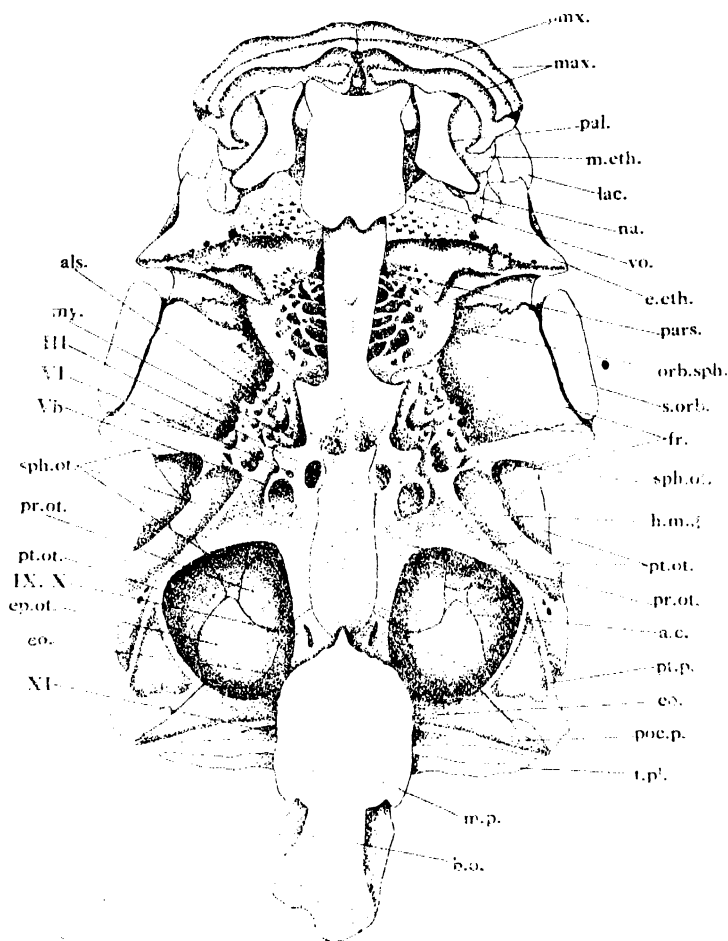


FIG. 14. Ventral view of the skull. ($\times ca \frac{1}{2}$). *a.c.*, auditory capsule; *als.*, ali-sphenoid; *b.o.*, basi-occipital; *e.eth.*, ecto-ethmoid; *eo.*, ex-occipital; *ep.ot.*, epiotic; *fr.*, frontal; *h.m.g.*, groove for hyomandibular; *lac.*, lacrymal; *max.*, maxilla; *m.eth.*, mesethmoid; *m.p.*, masticating process of basi-occipital; *my.*, myodome; *na.*, nasal; *orb. sph.*, orbito-sphenoid; *pal.*, palatine; *pars.*, para-sphenoid; *pmx.*, pre-maxilla; *poc.p.*, par-occipital process; *pr.ot.*, pterotic; *pt.ot.*, pterotic process; *s.orb.*, supra-orbital; *sph.ot.*, sphenotic; *t.p.¹*, transverse process of the first vertebra; *vo.*, vomer; *III*, foramen for the third cranial nerve; *VI*, *IX*, and *X*, foramina for the sixth, ninth, and tenth cranial nerves; *XI*, foramen for the occipito-spinal nerve.

internally lies a large oval *fenestra*. This fenestra pierces the ex-occipital of each side and forms a characteristic feature of the skull of Cyprinoid fishes. It is covered over by a thick tough membrane in the living condition.

The *basi-occipital* is a large drain-pipe shaped bone thickest in the middle. It is about twice as long as it is wide. The posterior half of the bone presents the appearance of an open drain, while in the anterior half, the 'drain' is roofed over by a vertebra-like bony piece—the *occipital condyle*. The posterior surface of the occipital condyle bears a deep conical depression like that of a centrum, to which the vertebral column is attached by ligaments without a distinct articulation. The edges of the posterior 'open drain-like' part support the first three vertebrae, while the drain-channel itself serves to lodge the dorsal aorta. On its ventral surface, the basi-occipital bears a large oval *masticatory process*,¹ which is covered over during life by a horny pad; behind the masticatory process, the bone is produced into a prominent mid-ventral ridge.

In front of the occipital condyle, the basi-occipital is compressed dorso-ventrally and presents two longitudinal shallow grooves on its dorsal surface, each of which forms a closed canal in conjunction with a corresponding groove on the ventral surface of each ex-occipital. These lateral canals lodge the two sacculi² of the internal ear. In a complete skull, the dorsal surface of this anterior part of the basi-occipital is entirely covered over by the basal plates of the two ex-occipitals. Anteriorly the basi-occipital is sutureally connected with the hind end of the parasphenoid.

All the bones of the occipital region are preceded by cartilage and are therefore replacing bones.

(b) *The Otic Region*.—The *auditory capsule* in the skull of all craniates lies morphologically between the facial and the glosso-pharyngeal nerves. In the Teleostei, each auditory capsule develops from an independent *otic cartilage* which becomes connected below with the parachordals; the otic cartilage grows round the *membranous labyrinth* of the ear and in the adult is typically ossified into a group of five bones—the *prootic*, the *epiotic*, the *sphenotic*, the *pteric*, and the *opisthotic*. In *Rohu*, the opisthotic is absent³ and the remaining four otic bones form a compact structure having the appearance of an inverted cup, one on each

¹ According to Nussbaum's recent account, three vertebral segments in *Cyprinus* combine with the skull behind the vagus foramen to form the basi-occipital region; and the haemal arches of the second and third fuse to form the large ventral masticatory process enclosing the aorta while their neural spines contribute to the supra-occipital. (Goodrich—*Studies on the Structure and Development of Vertebrates*, p. 592 (London: 1930).)

² cf. Footnote, p. 314.

³ It is possible that it fuses early with the ex-occipital forming the par-occipital process.

side of the hinder part of the cranial cavity. In a cleaned skull, the hollow of each auditory capsule is empty but in the living fish the hollow is filled up by the dorsal muscles of the inferior pharyngeal bones.

The *prootic* is a large irregular bone which forms the antero-mesial wall of the auditory capsule and lodges a portion of the anterior vertical and horizontal semi-circular canals. We can roughly distinguish two portions in this bone—(1) a large thick *ventro-lateral portion* and (2) a small *lateral portion*, the two forming an angle of about 120° with each other and separated by a ridge which is very well-marked anteriorly. Dorsally, the posterior part of the ventro-lateral portion of the prootic is produced into a process which meets the corresponding process of the opposite side in the middle line, leaving an anterior V-shaped

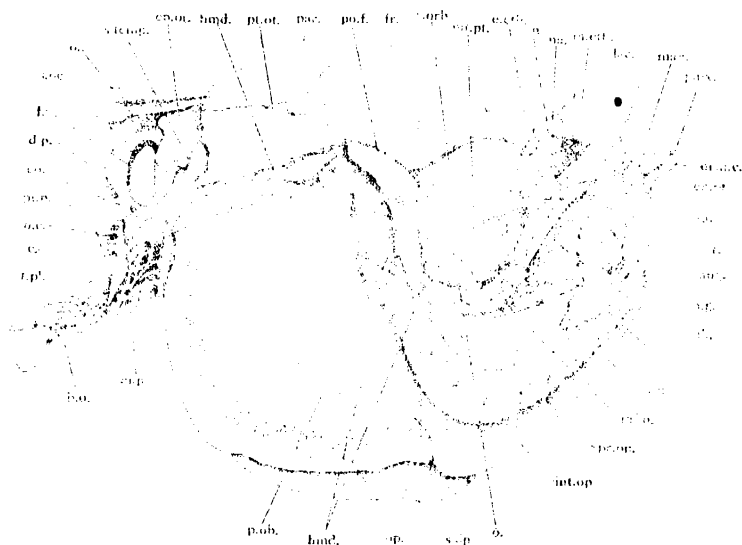


FIG. 15. Lateral view of the skull. ($\times 64$). *ang.*, angular; *art.*, articular; *b.o.*, basi-occipital; *c.*, centrum; *d.*, dentary; *d.p.*, dorsal process of exoccipital; *ecth.*, ecto-ethmoid; *ex.pt.*, endo-ptyerygoid; *co.*, exoccipital; *ep.ot.*, epiotic; *f.*, fenestra; *fr.*, frontal; *hmd.*, hyomandibular; *inf.o.*, infra-orbital; *int.op.*, inter-opercular; *lac.*, lacrymal; *max.*, maxilla; *meta.pt.*, meta-ptyerygoid; *n.*, nostril; *na.*, nasal; *o.*, orbit; *o.c.*, occipital condyle; *op.*, opercular; *or.n.c.*, anterior opening of the orbito-nasal canal; *o.s.*, occipital spine; *par.*, parietal; *p.m.c.*, pre-maxilla; *p.ob.*, post-orbital; *po.f.*, post-frontal; *pr.ob.*, pre-orbital; *pr.op.*, pre-opercular; *pt.g.*, ecto-ptyerygoid; *pt.ot.*, pterotic; *pt.p.*, pterotic process; *q.*, quadrate; *r.*, rostral; *s.oc.*, supra-occipital; *s.op.*, sub-opercular; *s.orb.*, supra-orbital; *s.temp.*, supra-temporal; *sym.*, symplectic; *t.p.1.*, transverse process of first vertebra.

notch for the pituitary fossa; ventrally, the ventro-lateral portions of the two prootics do not meet in the middle line but

articulate mesially with the parasphenoid. The prootic has a large semi-circular anterior border which articulates below with the ali-sphenoid, laterally with the sphenotic and dorsally with the pterotic. The posterior border is more or less straight and vertical and articulates with the anterior edge of the ex-occipital. Embedded in its inner wall which constitutes the postero-lateral wall of the cranial cavity, lie the ampullæ of the semi-circular canals and the utriculus of the internal ear. On its postero-dorsal surface just beneath the medulla lies the transverse canal joining the two membranous labyrinths. The *lateral portion* of the prootic presents a concave surface and forms the inner anterior wall of the auditory capsule. It articulates with the ex-occipital and the epiotic behind and with the sphenotic in front.

The *epiotic* is a bowl-shaped bone which forms the greater part of the roof of the auditory capsule. Looked at from the ventral side, it shows the deep hollow of the bowl and is completely surrounded by the ex-occipital behind and the sphenotic in front, while the pterotic lies on its outer and the prootic on its inner side. On the dorsal surface of the skull, the epiotic is seen to lie on each side of the median supra-occipital and is overlapped by the posterior edge of the parietal in front and suturally connected with the dorsal border of the par-occipital process of the ex-occipital. On its outer border, the epiotic is produced into a splint-like process which partially covers the posterior part of the pterotic bone. The epiotic lodges a portion of the anterior and the posterior vertical semi-circular canals.

The *pterotic* is a large irregularly triangular bone which forms the outer wall of the auditory capsule and encloses a part of the horizontal semi-circular canal. Its anterior portion is at a higher level lying flush with the parietals and the frontals, while the posterior portion—the *pterotic process*—is at a lower level and is connected with the epiotic and the par-occipital process of the ex-occipital bone. Its outer crescentic border is smooth but the inner border is very much crenated to form articulating wavy sutures with the frontals, the parietals and the epiotics. The ventral side of the pterotic presents an uneven surface with a strongly marked ridge which is continuous with similar ridges on the ex-occipital and the prootic, thus forming a continuous circular ridge which encloses the horizontal semi-circular canal of the internal ear. The outer edge is connected with the upper border of the opercular bone by means of stout ligaments, while a small *supra-temporal* bone fits into a shallow depression lying near the junction of the pterotic process with the main anterior portion of the pterotic. Lying immediately behind and beneath the supra-temporal is the *post-temporal* which covers the greater part of the pterotic process. On its ventro-lateral border, the pterotic presents a well-marked shallow groove—the *hyomandibular*

and forms the front wall of the auditory capsule and the posterior boundary of the orbit in front. It articulates with the prootic behind, with the pterotic, the parietal and the frontal above and with the ali-sphenoid below. It consists of two portions: (1) the body of the sphenotic and (2) the Y-shaped anterior process. The body of the sphenotic is roughly triangular in outline and bears two conical pits, one of which has a spongy base and forms a portion of the anterior wall of the auditory capsule while the other abuts on the cranial cavity. The Y-shaped anterior process lies horizontally; its basal limb articulates in front with the outer projecting point of the frontal; the upper limb is slender but the lower limb is thick and bears a shallow groove which is continuous with a similar groove on the pterotic, the two together forming the *hyomandibular groove*.

All the four bones of the auditory capsule are replacing bones.

(c) *The Orbito-temporal Region*.—The *orbito-temporal region* includes (a) the *temporal* or *sphenoidal region* and (b') the *orbits*.

(a) The *sphenoidal region* comprises: (α) the *parietal region*, including the *parietals*, the *ali-sphenoids*, and the posterior part of the *para-sphenoid*, and (β) the *frontal region*, including the *frontals*, the *orbito-sphenoids*, and the anterior part of the *para-sphenoid*. Besides these, there is another bone—the *supra-temporal*—which is situated at the latero-posterior angle of the skull in close relation with the upper end of the pectoral girdle and which should also be included in this region.

(α) THE PARIETAL REGION.

The *parietals* are a pair of large rectangular *dermal* bones suturally connected with each other in the mid-dorsal line. The anterior edge of each parietal is connected with the posterior edge of the frontal, while the lateral edge overlaps the mesial edge of the pterotic and the mesio-dorsal surface of the sphenotic. Posteriorly the two bones are connected with and partially overlap the supra-occipital and the epiotic bones. The posterior edge of each parietal bears a shallow groove for the attachment of muscles covering the posterior part of the skull. The ventral surfaces of the two bones form part of the roof of the cranial cavity.

The *ali-sphenoids* are a pair of irregular bones, each consisting of a horizontal *basal piece* and a *vertical process* arising from the dorsal surface of the basal piece. Looked at from the ventral surface, each basal piece presents a jagged surface, and the two basal pieces meeting in the middle line leave a V-shaped notch at both the anterior and the posterior ends. The notch at the posterior end is confluent with a vacuity left between the dorso-mesial ends of the two prootics thus forming the elongated oval *pituitary fossa*. Into the anterior notch fit the postero-

mesial portions of the orbito-sphenoids, thus completing the cranial floor at this place. The posterior edge of each basal piece articulates with the prootic. The vertical longitudinal process of each ali-sphenoid forms the lateral wall of the cranial cavity in this region, while externally it forms the inner wall of the posterior part of the orbit. The vertical process articulates posteriorly with the sphenotic, dorsally with the ventral ridge-like outgrowth of the frontal and anteriorly with the orbito-sphenoid.

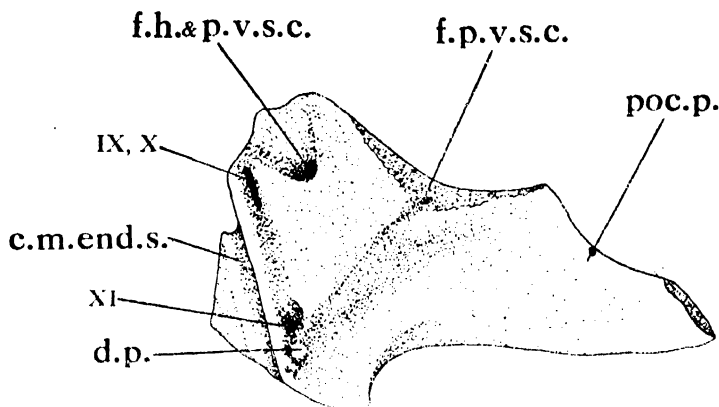


FIG. 17. External view of the right ex-occipital. ($\times ca \frac{3}{4}$). *c.m.end.s.*, canal for median endolymphatic sinus; *d.p.*, dorsal process of the bone; *f.h.* and *p.v.s.c.*, foramen for horizontal and posterior vertical semi-circular canals; *f.p.v.s.c.*, foramen for posterior vertical semi-circular canal; *poc.p.*, par-occipital process; *IX, X*, foramen for the ninth and tenth cranial nerves; *XI*, foramen for the occipito-spinal nerve.

(β) THE FRONTAL REGION.

In front of the parietals, the roof of the skull is formed by the two large *frontals*, which occupy about one-half of the dorsal surface of the skull and are connected with each other by a median suture. The anterior margin of each frontal is slightly convex and articulates mesially with the posterior edge of the *mesethmoid*, and laterally with the *nasal* and the *ectothmoid* of its own side. The lateral margin of each frontal bears a large triangular projection, thus forming a concave antero-lateral edge and similarly a concave postero-lateral edge. Along the antero-lateral edge articulates the *supra-orbital* ossification, while the postero-lateral edge articulates ventrally with the Y-shaped anterior process of the sphenotic and laterally with the *post-frontal* ossification and the anterior end of the *pteryotic*. The posterior margin of the frontal is irregular in outline and articulates with the anterior edge of the parietal.

The ventral surface of each frontal presents two well-marked ridges; one of them is a low ridge lying beneath the lateral

triangular projection, along which the lateral process of the sphenotic articulates with the frontal; while the second is a high ridge about an inch in length which articulates with the vertical process of the ali- and orbito-sphenoids and with the ecto-ethmoid in front. The portion of the frontal internal to this high ridge forms the roof of the cranial cavity, while the portion of each frontal between the two ridges forms the roof of the orbit.

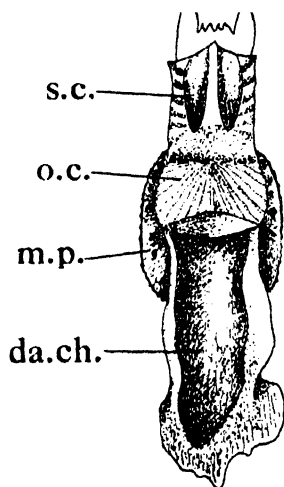


FIG. 18. Dorsal view of the basi-occipital. ($\times ca \frac{1}{2}$). *da.ch.*, channel lodging the dorsal aorta; *m.p.*, masticating process of basi-occipital; *o.c.*, occipital condyle; *s.c.*, saccular canal.

consists of a long, thin, splint-like body, with a cross-piece or a lateral process on either side. The lateral processes are flat and wing-like and lie about the middle of the bone just beneath the ventral surfaces of the ali-sphenoids. Immediately in front of the cross-piece, the bone becomes narrow but widens gradually, becoming flatter and thinner towards its anterior end, the extreme anterior end being lancet-shaped. Between and behind the lateral processes, the bone is broad and strongly convex on its ventral surface and concave on its dorsal surface. Looked at from the ventral side, the middle portion of the bone is the highest, the bone sloping down from

The *orbito-sphenoid* forms the floor as well as the middle portion of the inner wall of the orbit and lies in front of the ali-sphenoid. Like the ali-sphenoid, it consists of a horizontal *basal piece* and a *vertical longitudinal process*, the inner edges of the two basal pieces meeting in the mid-ventral line. Ventrally each basal piece presents a broken surface but dorsally it is smooth and forms partly the floor of the orbit and partly the floor of the cranial cavity—the two parts being separated by the vertical longitudinal process. The anterior edge of the orbito-sphenoid articulates with the postero-mesial edge of the ecto-ethmoid while the posterior edge articulates with the ali-sphenoid.

The *para-sphenoid*¹ is a very long cross-shaped bone which covers a large part of the ventral surface of the cranium. It extends from the hind end of the basi-occipital bone right up to the vomer in front and

¹ The basi-sphenoid of the other Teleostei is absent in *Labeo* as a separate ossification, but it is possible that it may have fused with the para-sphenoid.

this point both forwards and backwards. In front of the lateral processes, there is a well-marked median vertical ridge running forwards towards the anterior end; the ridge is bounded on each side by a small spine-like process at its base. On the dorsal surface of the posterior portion, there is a median longitudinal channel which gradually disappears posteriorly but extends anteriorly on to the dorsal surface of the lateral processes and forms the floor of the *myodome* or the *eye-muscle-canal*. The lateral margins of the bone articulate on either side with the prootic behind, the ali-sphenoids and the orbito-sphenoids in the middle and the ecto-ethmoids in front. The cross-piece overlaps the ventral surfaces of the ali-sphenoids but does not lie quite flat on them so that a wide space is left between the two, which forms the anterior part of the *eye-muscle-canal* or the *myodome*.

Of the bones of the sphenoidal region the ali- and the orbito-sphenoids are replacing bones, while the parietals, frontals and the para-sphenoid are all investing (dermal) bones.

The *myodome* is a name applied to 'a space developed in the orbito-temporal and otic regions of Teleostomes for the accommodation of the lengthened recti muscles of the eye'. In *Rohu*, the myodome in the dry skull is a large median space lying between the floor of the cranial cavity above and the para-sphenoid below. It is bounded posteriorly by the prootic and the basi-occipital, dorsally by the ali-sphenoid, ventrally by the para-sphenoid and anteriorly by the orbito-sphenoid. It opens anteriorly into the orbit by a large oval aperture through which the recti muscles pass behind to be inserted on to the walls of the myodome. The myodome is supposed to have originated by the penetration into the enlarged opening for the pituitary vein of recti muscles originally inserted on the outer surface of the orbital wall.¹

(b) *The Orbits*.—As already mentioned, the two *orbits* lie anteriorly on the ventro-lateral aspects of the skull. Each is bounded dorsally by the frontal, ventrally by the basal plates of the ali- and orbito-sphenoids, anteriorly by the ecto-ethmoid, posteriorly by the sphenotic and part of the ali-sphenoid and mesially by the vertical processes of the ali- and orbito-sphenoids. Besides these bones, five small *orbital bones* are developed in connection with the orbit, which together form the so-called '*orbital ring*'. Of these, the *supra-orbital* and the *post-frontal* surround the orbit dorsally, the *pre-orbital* forms the anterior boundary, the *infra-orbital* lies at the antero-ventral border while the *post-orbital* forms the postero-ventral border.

The *supra-orbital* is a small flat quadrangular bone, the anterior edge of which is connected with the ecto-ethmoid by

¹ Goodrich, E. S.—*Studies on the Structure and Development of Vertebrates*, p. 279 (London: 1930).

means of connective tissue while its mesial edge articulates with and slightly overlaps the antero-lateral border of the frontal. Its posterior edge is narrower than the anterior and is joined by means of connective tissue with the anterior edge of the post-frontal. The dorsal surface is more or less convex whereas the ventral surface is concave.

The *post-frontal* which forms the posterior part of the dorsal boundary of the orbit is more or less triangular in shape; the apex of the triangle lies away from the margin of the orbit and articulates with the anterior edge of the pterotic while the base of the triangle which is the smallest of the three sides articulates with the post-orbital. The inner side articulates with the postero-lateral edge of the frontal, whereas its outer side is connected with the opercular bone.

Ventro-laterally the orbit is bounded by a chain of three bones of which the most ventral is the *infra-orbital* with the *pre-orbital* in front and the *post-orbital* behind. The *pre-orbital* is an elongated slightly curved bone which articulates anteriorly with the *lacrymal*¹ and posteriorly with the *infra-orbital*. The *infra-orbital* is a narrow sickle-shaped bone forming the ventral boundary of the orbital ring and interposed between the *pre-orbital* in front and *post-orbital* behind. The *post-orbital* is an elongated bone which articulates behind with the *post-frontal*.

All the bones of the orbital ring are investing (dermal) bones.

It will be seen that each orbit is separated from the cranial cavity by a bony wall formed chiefly of the vertical processes of the orbito- and ali-sphenoids and that the cranial cavity extends between the two orbits right up to the ethmoidal region. Such a skull, in which there is no median vertical inter-orbital septum and the brain extends between the two orbits right up to the ethmoidal region, is termed *platybasic*.²

(d) *The ethmoidal Region*.—The *ethmoidal region* includes the bones developed in relation to the snout and the nostrils, specially the enclosure of the paired nasal sacs. These are the paired

¹ According to various writers, the *lacrymal* forms the first of the series of bones which surround the orbit forming the so-called orbital ring; but in *Labeo* the *lacrymal* lies anterior to the orbital ring of bones being quite cut off from the latter. It is connected with the olfactory capsule and forms the anterior boundary of the nasal opening. Hence the bone has been considered in connection with the ethmoidal region rather than with the orbito-sphenoidal region. According to the position of the bones forming the orbital ring in *Labeo*, the *supra-orbital* is the first of the series.

² According to the absence or presence of the *inter-orbital septum*, the skulls are distinguished as *platybasic* and *tropibasic*. In the former case, the *inter-orbital septum* is absent and the brain extends up to the anterior extremity, e.g. in *Labeo*, *Frog*, etc. In the *tropibasic* type of skull, the orbits are separated only by an *inter-orbital septum* and the cranial cavity does not extend between them, the brain remaining behind the posterior margin of the orbital region, e.g. in *Chimaera*.

nasals, *ecto-ethmoids* and *lacrymals*, and a median *mesethmoid*, a *vomer* and a *rostral*.

Lying immediately in front of the frontal bones is a transversely elongated bone—the median *mesethmoid*—which separates the olfactory capsules of the two sides from one another. It consists of a central body with two lateral flat wing-like processes with rounded margins. The anterior border of the bone presents a median concave notch bounded on each side by a small pointed horn-like process. The median *rostral* bone fits into this concave notch. There is another deeper concavity on either side of the median notch. The dorsal surface of the bone has a smooth and polished appearance but its posterior border is rough in appearance and is covered over by the large frontals. Ventrally the bone bears a deep depression with thick lateral borders; in an entire skull this depression is covered over by the vomer. Posteriorly, the mesethmoid splits into a dorsal and a ventral plate, the two forming an angle of about 45° with each other and enclosing between them a median space which forms the extreme anterior end of the cranial cavity, filled in a fresh fish with a semi-solid fatty substance. The postero-lateral sides of both the dorsal and ventral plates articulate with the corresponding anterior edges of the *ecto-ethmoids*. Dorsally, at the postero-lateral angles of the mesethmoid lie the small *nasals*, while the *lacrymals* are situated along its antero-lateral borders. The lancet-shaped anterior end of the para-sphenoid is wedged in between the posterior borders of the vomer and the mesethmoid on the ventral surface of the skull. The lateral wings of the mesethmoid are free and each overhangs the nasal pit of its own side.

The *nasal* is a very small reniform bone, which lies above the olfactory capsule, on either side, in the notch formed at the postero-lateral corner of the mesethmoid with the adjoining corner of the frontal. Along with the lateral wing of the mesethmoid, the nasal forms the roof of the *nasal pit* and the dorsal border of the two nasal apertures or the nostrils.

Lying behind on each side of the mesethmoid is the *ecto-ethmoid* which forms the *olfactory capsule*. Each *ecto-ethmoid* consists of two portions: a mesial *body* covered over dorsally by the antero-lateral portion of the frontal and a *lateral process*. The main body of the bone is excavated by a deep pit—the so-called *nasal pit*—which lodges the nasal sac, and opens to the exterior by the double *nasal opening* which is completely surrounded by bone and is situated on the outer dorso-lateral surface of the *ecto-ethmoid*. On its posterior side, the bone presents a concave surface which forms the anterior boundary of the orbit. A small process from the ventro-mesial border of each *ecto-ethmoid* meets a similar process from the *ecto-ethmoid* of the other side in the middle line and these two median processes of the two bones are covered over ventrally by the

anterior portion of the para-sphenoid. Antero-ventrally, each ecto-ethmoid articulates with the postero-lateral edge of the mesethmoid and postero-laterally with the anterior surface of the orbito-sphenoid. The outer *lateral process* of each bone articulates with the lacrymal in front and the pre-orbital behind. Posteriorly, it is connected with the anterior surface of the supra-orbital by means of stout ligaments. The dorsal surface of the lateral process forms a part of the floor of the nasal pit.

The *lacrymal* is a small elliptical bone lying alongside the antero-lateral border of the lateral wing of the mesethmoid right in front of the nasal openings. Its anterior edge is convex while the posterior edge is more or less straight. The anterior end of the bone is attached by means of connective tissue to the maxillary bone; at its inner border it articulates with the antero-lateral border of the mesethmoid; while the posterior end articulates with the lateral process of the ecto-ethmoid and the pre-orbital.

The *rostral* is a small flat bony piece with a short process extending downwards from its ventral surface. It lies in the median dorsal line just in front of the mesethmoid, between and behind the paired maxillæ. It is connected laterally and in front with the maxilla and behind with the mesethmoid by means of fibrous tissue. It is a specialized portion of the *ethmoid cartilage*.

The *vomer* is a thin quadrangular bone, lying on the ventral surface of the skull immediately in front of the para-sphenoid and beneath the mesethmoid. It forms the floor of the cavity roofed over dorsally by the mesethmoid. The anterior border of the bone is concave in outline and bears at each corner a thick condylar process, behind which there is a pad-like thickening articulating with the palatine of each side. The posterior edge is convex and bears a notch in the middle. Laterally the vomer articulates with the palatine and the antero-lateral edge of the ecto-ethmoid while posteriorly it overlaps the anterior border of the para-sphenoid.

Of the bones of the ethmoidal region, the mesethmoid, the ecto-ethmoids and the rostral are replacing bones, while the nasals, lacrymals and the vomer are all investing (dermal) bones.

(e) *Foramina for the emergence of the Cranial Nerves*.—The ten cranial nerves come out of the cranial cavity through the following foramina: (1) The *olfactory foramen* is a large rounded aperture at the bottom of the olfactory capsule on each side, through which the long olfactory nerve emerges out of the cranial cavity to supply its branches to the mucous membrane of the olfactory chamber. Immediately outside the olfactory foramen lies the anterior opening of the orbito-nasal canal (*vide infra*).

(2) The *optic foramen* is a very large oval aperture—almost a

large fissure—bounded dorsally by the ali-sphenoid, anteriorly by the orbito-sphenoid and ventrally by the para-sphenoid. The optic nerve of each side comes out through this large aperture while the recti muscles of the eye-ball enter the myodome through it. The two nerves cross each other beneath the ventral surface of the brain, and passing over to the opposite side, each leaves the cranial cavity through the optic foramen.

(3) The *foramen for the oculo-motor nerve* is a small elongated slit-like aperture on the floor of the myodome, situated about a quarter of an inch behind the optic foramen on each side. Through it the oculo-motor nerve enters the orbit from the cranial cavity.

(4) The *foramen for the pathetic nerve* is a very narrow elongated foramen towards the lower end of the ali-sphenoid above the optic foramen and beneath the foramen for the ophthalmic division of the trigeminal nerve. Through it the pathetic nerve enters the orbit from the cranial cavity.

(5) The *foramen for the ophthalmic division of the trigeminal nerve* is a fairly large foramen, more or less triangular in outline, lying at the posterior angle of the orbit at the junction of the vertical and the horizontal portions of the alisphenoid above the foramen for the pathetic nerve, below and a little behind the foramen for the ophthalmic division of the facial. Through it the ophthalmic division of the fifth nerve enters the orbit from the cranial cavity. In the orbit, this nerve runs forwards and upwards and reaching the anterior end of the orbit passes through the orbito-nasal canal, crosses the olfactory sac and continues its course forwards to divide into branches, which innervate the skin of the dorsal surface of the snout.

(6) The *foramen for the main division of the trigeminal nerve* is a large opening that perforates the anterior end of the prootic and lies immediately behind the large optic foramen. Through it the main portion of the trigeminal consisting of the maxillary and the mandibular branches leaves the cranial cavity. This foramen also transmits the buccal branch of the seventh nerve.

(7) The *foramen for the abducens* is a small foramen on the floor of the myodome, in between the oculo-motor foramen and the foramen for the trigeminal. It is easily seen as a rounded aperture on the ventral surface of the skull immediately outside the oculo-motor foramen. Through it the abducens nerve enters the orbit from the cranial cavity.

(8) The *foramen for the ophthalmic division of the facial* is a small rounded aperture on the inner wall of the orbit, in front of and above that of the ophthalmic division of the fifth. Through it the ophthalmic division of the facial nerve enters the orbit from the cranial cavity. In the orbit it runs forwards and upwards alongside and immediately above the ophthalmic division of the fifth and leaves the orbit along with the latter to innervate the anterior end of the snout.

(9) The *foramen for the main division of the facial* is a small slit-like foramen just behind and below the foramen for the maxillary and the mandibular divisions of the trigeminal. It pierces the prootic and through it the main trunk of the facial nerve leaves the cranial cavity.

(10) The *foramen for the glosso-pharyngeal and the vagus nerves* is a large elongated fissure-like aperture on the ventral surface in the posterior region of the skull. It perforates the ex-occipital bone just behind the prootic. It transmits the glosso-pharyngeal and the vagus nerves.

(11) The *foramina for the occipito-spinal nerves* are a pair of small foramina on either side in the auditory capsule. The first or the anterior one pierces the posterior wing-like portion of the ex-occipital behind the foramen for the ninth and tenth nerves and ventral to the ridge lodging the horizontal semi-circular canal. It transmits the anterior division of the occipito-spinal nerve. The second or the posterior one pierces the ventromesial edge of the ex-occipital bone and transmits the posterior division of the occipito-spinal nerve.

(f) *Other important apertures in the skull.*—In addition to the nerve-foramina described above, the following apertures may also be noted: (1) The *orbito-nasal canal* perforates the ecto-ethmoid bone for about a quarter of an inch opening anteriorly into the olfactory capsule and posteriorly into the orbit. It serves as a passage for one of the veins in the anterior region of the head.

(2) About a quarter of an inch behind and a little above the foramen for the trigeminal nerve is a *vacuity* in the pro-otic bone through which the anterior vertical and the horizontal semi-circular canals leave the cranial cavity and pierce the various bones which they traverse (cf. the account of the otic region). This vacuity is seen on the inner cranial wall in a median section of the skull.

(3) Just dorsal to the foramen for the glosso-pharyngeal and the vagus nerves is a *vacuity* which leads behind into the channels lodging the posterior vertical and the horizontal semi-circular canals. This vacuity also can be seen in a median section of the skull.

(4) The *fenestrae* are a pair of large oval openings at the posterior end of the skull enclosed by the epi-otic and the supra-occipital dorsally and by the ex-occipital laterally and ventrally. It is covered over during life by a thick membrane.

(5) The *foramen magnum* is a large triangular median opening at the hind end of the skull completely enclosed by the ex-occipitals. Through it the spinal cord enters the skull to be continued into the medulla of the brain.

(6) The *atrial apertures* are a pair of small openings on the floor of the cranium, one on either side of the median line, just behind the foramen magnum at the posterior end of the skull.

These are enclosed by the ex-occipital dorsally and the basi-occipital ventrally. These apertures lead into a median canal—the atrium—which lodges the sinus endolymphaticus of the internal ear.

(7) The channel lodging the dorsal aorta is a big drain-like channel excavating the basi-occipital. Through it the dorsal aorta passes forwards to lie on the ventral surface of the skull.

(2) THE VISCERAL SKELETON.

The *visceral skeleton* (figs. 19-24) originally consists of a series of seven half-hoops which are derived from the splanchnic mesoblast and primarily lie in the pharyngeal wall encircling the buccal and pharyngeal cavities. The corresponding right and left half-hoops unite with one another in the mid-ventral line, forming seven *visceral arches*. Again, the successive visceral

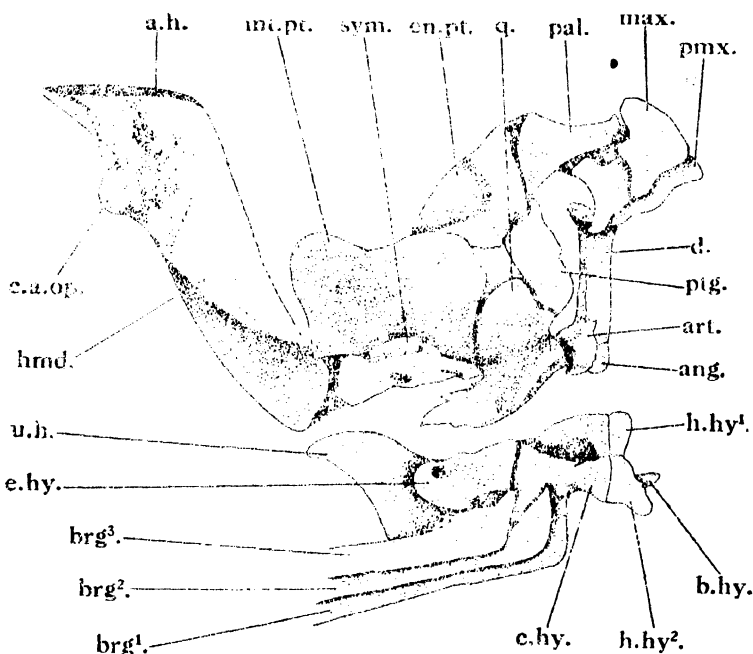


FIG. 19. Outer view of the right jaws and hyoid arch. (\times ca Nat. size).
a.h., articulating head of hyomandibular; *ang.*, angular; *art.*, articular; *b.hy.*, basi-hyal; *brg.*¹⁻³, first, second, and third branchiostegal ray; *c.a.op.*, condyle for articulation with opercular bone; *c.hy.*, cerato-hyal; *d.*, dentary; *e.hy.*, epi-hyal; *en.pt.*, endo-pterygoid; *h.hy.*¹⁻², first and second hypo-hyals; *hmd.*, hyomandibular; *max.*, maxilla; *mt.pt.*, meta-pterygoid; *pal.*, palatine; *pmx.*, pre-maxilla; *ptg.*, ecto-pterygoid; *q.*, quadrate; *sym.*, symplectic; *u.h.*, uro-hyal.

arches unite with one another in the mid-ventral line, thus giving rise to a basket-like *visceral skeleton*. The first of these

arches—the *mandibular arch*—lies immediately behind the mouth and gives rise to the upper and lower jaws which are closely connected with the cranium. The second or the *hyoid arch* forms the suspensorium by means of which the two jaws are suspended from the lateral surfaces of the auditory capsules. Of the next five arches known as the *branchial arches*, four support the gills while the fifth forms the *inferior pharyngeal bones*, which develop into powerful masticating plates armed with large teeth biting against the horny pad borne on the ventral process of the basi-occipital.

In the adult *Rohu*, the visceral arches are completely ossified, being composed of both replacing and investing bones.

(a) *The mandibular arch*.—The *mandibular arch* is highly developed, consisting of a 'primary' *endoskeletal* part and a 'secondary' *dermal* part. Each half of this arch is divided into a dorsal *palato-pterygo-quadrate* bar which enters into close relation with the cranium and forms the primary upper jaw, and a ventral *Meckel's cartilage*, which forms the primary lower jaw. The primary upper jaw is ossified by three replacing bones—the *palatine*, the *meta-pterygoid* and the *quadrate* while it is covered over by two dermal bones—the *ecto-pterygoid* (pterygoid) and the *endo-pterygoid* (meso-pterygoid). These bones do not, however, enter into the gape of the mouth and do not therefore constitute the upper jaw proper of the adult fish. Two large investing bones—the *pre-maxilla* and the *maxilla*—on each side support the anterior margin of the mouth and together form the secondary upper jaw; but the pre-maxilla alone bounds the mouth, the maxilla being shut off altogether from the gape.

Each half of the primary lower jaw or Meckel's cartilage is ossified by a single small bone, the *articular*,¹ which continues forwards into a narrow pointed rod of cartilage, representing the original meckel's cartilage. Two other bones, a large *dentary* and a small *angular* complete the adult lower jaw. The dentaries of the two sides meet in the middle line and support the posterior margin of the mouth.

The five elements of the upper jaw form a compact series of bones attached directly by means of the palatine to the ethmoid region of the cranium, and indirectly through the intervention of the hyomandibular and the symplectic to the auditory region of the skull.

The *palatine* is an elongated bone, expanded at both ends but narrow in the middle. Its inner edge is more or less straight while the outer edge presents a deep concavity. The ventral surface presents a shallow groove, while the dorsal surface bears a short blunt process whereby it articulates with the ventral surface of the mesethmoid. Anteriorly it articulates with the

¹ All the three bones of the lower jaw are of compound origin, partly endo-chondral and partly dermal (cf. p. 332).

posterior edge of the maxilla, the articular surface being thickened and rounded ; it is also attached to the posterior process of the maxilla by means of connective tissue along its external border. Posteriorly, it articulates both with the ecto-pterygoid and the endo-pterygoid while mesially it is bound to the ventral surface of the vomer through fibrous tissue.

The *ecto-pterygoid* (pterygoid) is a triangular thin plate-like bone which lies immediately behind the palatine. Its anterior border is free and presents a deep notch. Along its ventral border, it articulates with the quadrate while along its postero-dorsal border, it articulates with the endo- and meta-pterygoids. Externally the bone is partially covered over by the quadrate.

The *endo-pterygoid* (meso-pterygoid) is a thin rhomboidal bone lying behind the palatine and dorsal to the ecto- and meta-pterygoids. Its ventral surface is depressed while the external surface is convex and is partly covered over by the meta-pterygoid. It is firmly attached to the palatine along its anterior border, the inner border is free, while the posterior border articulates with the meta-pterygoid and the outer border with the ecto-pterygoid. The inner concave surface of the endo-pterygoid presents a number of vacuities.

The *meta-pterygoid* is a large flat bone, more or less quadrangular in outline, which lies behind the ecto- and endo-pterygoids, between them and the hyomandibular. Anteriorly it articulates with the endo- and ecto-pterygoids and the quadrate, ventrally it articulates with the symplectic and posteriorly with the hyomandibular. The inner surface of the bone presents a shallow depression, continuous anteriorly with a similar depression on the inner surface of the endo-pterygoid.

Articulating with the lower edge of the ecto-pterygoid is a large more or less triangular bone, the *quadrate*, which carries a ventral condylar process for the articulation of the lower jaw. Close to the ventral border of the quadrate runs a well-defined ridge directed obliquely backwards from the condyle. The posterior portion of the bone overlaps the anterior portion of the pre-opercular bone and has a jagged posterior border. On the inner surface close to the ventral border there is an elongated depression into which fits the anterior end of the symplectic. The dorsal portion of the quadrate partially covers the ecto-pterygoid and articulates posteriorly with the meta-pterygoid and the symplectic.

The *pre-maxilla* is a thick curved bone which meets its fellow of the opposite side in the middle line and forms the anteriormost bone of the skull. Its anterior edge is concave while the posterior edge is convex. The two pre-maxillæ are joined together in the middle line by means of connective tissue. Its free outer end together with the outer end of the maxilla forms an articulating surface for the dentary. The inner surface of the bone is highly concave ; but the outer surface is highly

convex and is partly overlapped by the maxilla with which it is firmly connected. The pre-maxilla is freely movable during life.

The *maxilla* is a thick curved bone of irregular shape lying dorsal and parallel to the pre-maxilla. It partially overlaps the pre-maxilla and is produced into two processes one directed outwards and downwards, the other directed inwards and downwards; the former along with the lateral edge of the pre-maxilla is bound by means of stout ligaments to the dorsal edge of the dentary while the other process is bound to the anterior border of the palatine by stout ligaments. The inner surface of the bone is deeply concave and closely fits on the outer surface of the pre-maxilla. Along its posterior border, the bone slightly overlaps and is bound to the dorsal surface of the vomer. The mesial edges of the two maxillæ do not meet in the middle line but are connected with each other by strong connective tissue. Posteriorly a small space is left between the maxillæ of the two sides, wherein fits the median rostral bone of the ethmoidal region. Dorso-laterally the maxilla articulates with the lacrymal.

The maxillæ, the pre-maxillæ and the rostral are strongly bound together by fibrous tissue; these five elements thus form a compact structure which acts as one piece, little movement being possible between its separate parts. This piece forms the upper jaw of the fish and is capable of a certain amount of movement upon the anterior end of the cranium to which it is attached, not only by general fibrous tissue, but also, on each side of the head, by the ethmoido-maxillary ligament which extends from the dorso-lateral process of the ecto-ethmoid to the maxilla, passing beneath the lacrymal. The upper jaw bones are also firmly connected with the dorso-lateral border of the mandible by means of stout ligaments, whereby they are pulled downwards and forwards when the mouth is opened. These ligaments also tend to pull them back in place when the mouth is closed, but, in addition to this indirect action, the adductor mandibulæ muscle acts directly upon the bones through a long tendon that arises from the lower anterior end of the muscle and is inserted on to the external surface of the maxilla.¹

The primary lower jaw, as already stated, is partly replaced by bone and partly covered by dermal ossifications. Three bones—a small *articular*, a large *dentary* and a small *angular* together form the adult lower jaw. The articular is made up of an endo-chondral articular fused with an outer dermal element called the 'derm-articular'. Similarly, the angular also develops from an endo-chondral and a dermal element. The dentary is also of compound origin, being formed of a true dermal dentary and a small anterior endo-chondral element probably representing the mento-meckelian (Goodrich, p. 303).

¹ Allis, E. P.—Skull and Cranial Muscles, etc. in Scomber. *J. Morph.*, v. 18, 1903.

The *articular* is a small elongated vertically placed bone consisting of a thick proximal end and a thin splint-like anterior part. The thick posterior end presents an articulating facet for articulation with the quadrate. The splint-like anterior part fits into a groove on the upper surface of the dentary and is continued upwards into a narrow pointed rod of cartilage which is the remnant of the original meckel's cartilage.

The *dentary* is a large bone, hammer-shaped in appearance, which meets its fellow of the opposite side in the median line and is bound with it by means of connective tissue. The long axis of the hammer, which lies in a vertical position, presents a groove on its inner surface, into which fit the splint-like portion of the articular and the meckel's cartilage. At its lower end, it articulates with the angular and at its dorso-lateral corner it is bound to the maxilla and the pre-maxilla. The upper end of the dentary is expanded horizontally and with its fellow of the opposite side forms the lower jaw proper which supports a thick horny pad during life.

The *angular* is a small, thick, irregular piece of bone that lies at the angle of the jaw and covers ventrally the lower end of the dentary with which it is suturally connected. Posteriorly

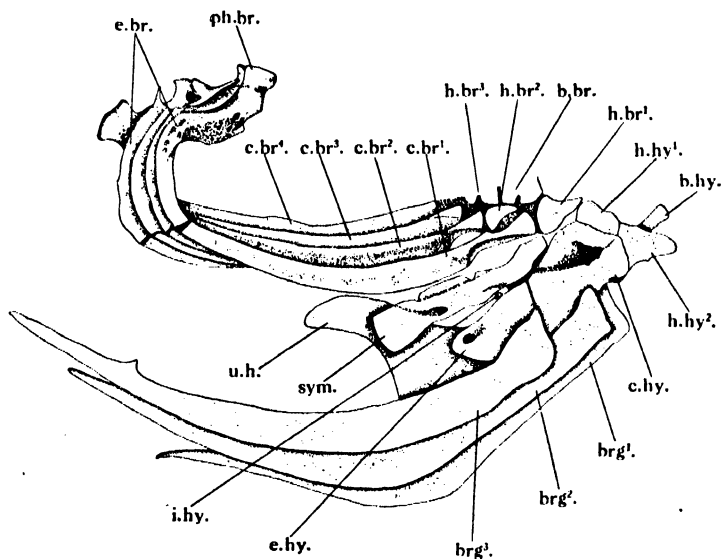


FIG. 20. The hyobranchial skeleton seen from the right side. ($\times ca 1\frac{1}{2}$). *b. br.*, basi-branchial; *b. hy.*, basi-hyal; *brg. 1-3*, first, second, and third branchiostegal ray; *c. br. 1-4*, first, second, third, and fourth cerato-branchial; *c. hy.*, cerato-hyal; *e. br.*, epi-branchial; *e. hy.*, epi-hyal; *h. br. 1-3*, first, second, and third hypo-branchial; *h. hy. 1-2*, first and second hypo-hyal; *i. hy.*, inter-hyal; *ph. br.*, pharyngo-branchial; *sym.*, symplectic; *u. h.*, uro-hyal.

the angular is connected by means of ligaments with the anterior end of the inter-opercular bone.

None of the bones of the two jaws bear teeth.

(b) *The Hyoid arch*.—The *hyoid arch*, like the mandibular, consists originally of two half-hoops of cartilage which are connected in the mid-ventral line through a median ventral piece, the *basi-hyal*. Each hyoid bar becomes divided into two parts: the dorsal *hyomandibula* and the ventral *hyoid cornu*, which latter is again divisible from above downwards into segments called respectively *epi-hyal*, *cerato-hyal*, and *hypo-hyal*. To these is added a ventral median copula, the *basi-hyal*. The large *hyomandibular* cartilage ossifies in two pieces—a *hyomandibular bone* above, articulating with the auditory capsule, and a *symplectic* below connected with the quadrate. These two bones form the *suspensorium* by means of which the two jaws are suspended to the skull proper. The remaining ventral elements of the hyoid arch ossify into three bones—the *epi-hyal*, the *cerato-hyal* and a double *hypo-hyal*. The copula or the *basi-hyal* connects the hypo-hyals of the two sides. A small separate segment the *stylo-hyal* or *inter-hyal* lies between the symplectic of the dorsal *hyomandibula* cartilage and the *epi-hyal* of the ventral *hyoid cornu* (it has sometimes been compared to the *epi-branchial*, but probably is a new formation). All these ventral elements of the hyoid arch are closely associated with the branchial arches, forming the so-called *hyobranchial skeleton*.¹

Of the next five arches known as the *branchial arches*, the four support the gills while the fifth known as the *inferior pharyngeal bones* form a powerful masticating plate armed with powerful teeth which bite against the horny pad borne on the ventral process of the *basi-occipital*.

Connected with the hyoid arch are a number of investing bones which serve to support the operculum. These are the *opercular*, the *pre-opercular*, the *sub-opercular* and the *inter-opercular*. Three sabre-shaped *branchiostegal rays* (*branchiosts*) are attached along the ventral border of the *epi-* and *cerato-hyals*, while an unpaired bone, the *basi-branchiostegal* or *uro-hyal*, lies posterior to the *basi-hyal*.

The *hyomandibular* is a strong elongated bone, which lies in an obliquely vertical position between the auditory capsule above and the *pre-opercular* below. Its anterior border is slightly concave while the posterior is slightly convex. It articulates dorsally with the lateral surface of the auditory capsule, the broad facet for its articulation being formed by the

¹ Except for its dorsal element, i.e. the *hyomandibular*, the hyoid arch is closely associated with the five branchial arches: hence the branchial arches together with the ventral portion of the hyoid arch should properly be designated the 'hyobranchial skeleton' (Goodrich, p. 440).

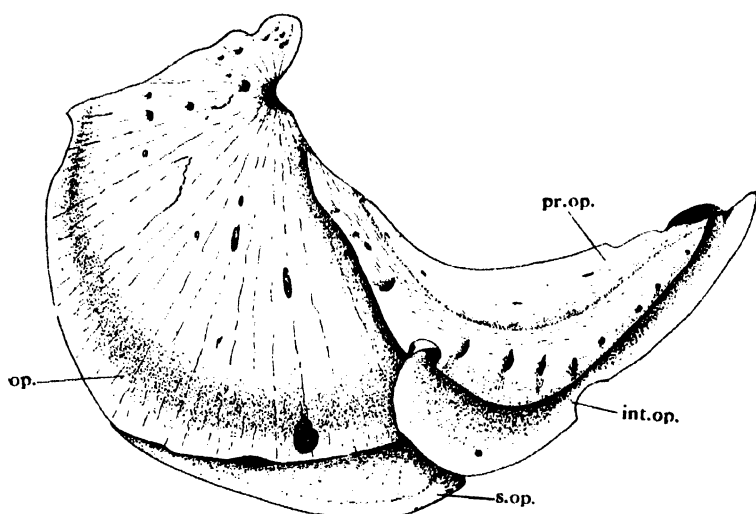


FIG. 21. External view of the operculum. ($\times ca 1\frac{1}{5}$). *int.op.*, inter-opercular; *op.*, opercular; *pr.op.*, pro-opercular; *s.op.*, sub-opercular.

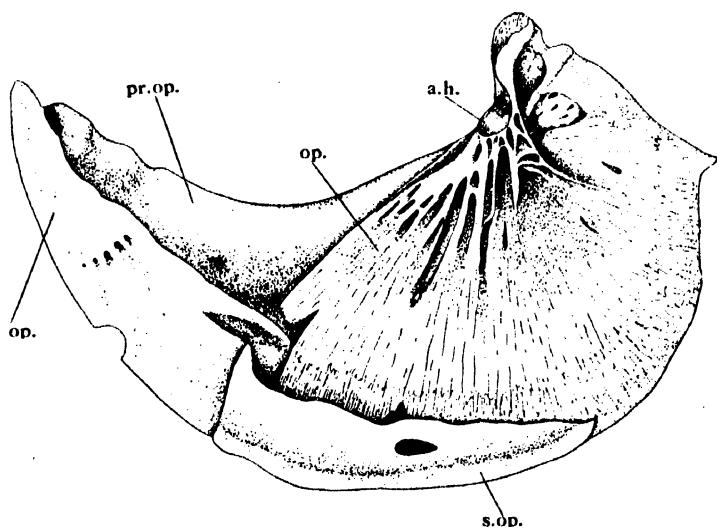


FIG. 22. Internal view of the operculum. ($\times ca 1\frac{1}{5}$). *a.h.*, articulating facet for hyomandibular; *int.op.*, inter-opercular; *op.*, opercular; *pr.op.*, pre-opercular; *s.op.*, sub-opercular.

sphenotic, prootic and the pterotic. Ventrally it articulates with the posterior border of the meta-pterygoid and the pre-opercular. The posterior edge possesses a knob for articulation with the opercular bone. Externally, part of its ventral portion is covered over by the pre-opercular bone. On its inner surface

just in front of the knob-like articulation with the opercular lies a foramen through which the hyomandibular nerve pierces the bone.

The *symplectic* is a long narrow bone lying in a horizontal position in front of the antero-ventral corner of the hyomandibular; the anterior third of it fits into a groove on the inner surface of the quadrate with which it is firmly articulated. Its posterior end is connected with the hyomandibular by means of stout ligaments. The dorsal border of the posterior two-thirds of the symplectic articulates with the meta-ptyergoid while the ventral border of the anterior half of the bone articulates with the cerato-hyal and the epi-hyal. Externally only a small portion of the symplectic is visible since it is largely overlapped by the pre-opercular bone. Both the hyomandibular and the symplectic are firmly attached to the meta-ptyergoid and the quadrate and together with the opercular and the pre-opercular form a rigid support for the jaws.

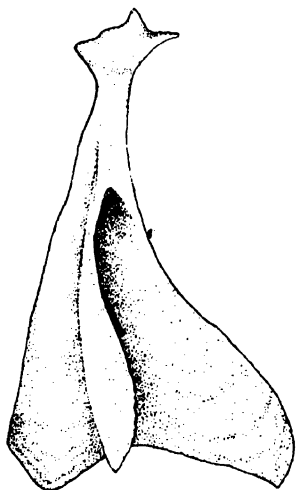


FIG. 23. Side view of the uro-hyal or basi-branchiostegal bone. ($\times ca \frac{1}{2}$).

The connection of the upper jaw with the cranium is effected partly by the articulation of the palatine with the ethmoidal region and partly by the suspensorium formed of the hyomandibular and the symplectic, the hyomandibular articulating with the auditory capsule and the symplectic fitting into a groove in the quadrate. The lower jaw, in its turn, is articulated to the quadrate bone. Thus the hyomandibular and the symplectic serve to suspend, so to speak, the two jaws from the cranium: they are, therefore, together called the *suspensorium*. Such a skull in which the hyomandibular serves as the suspensorium is known as *hyostylic*.¹

¹ In Dipnoi and possibly in Holocephali, the quadrate region is articulated directly to or fused with the auditory region of the skull without the intervention of the hyomandibular: this condition is described as *autostylic*. In the majority of Selachii and in all Teleostomi, the quadrate region is articulated with the skull through the intervention of the hyomandibular: this condition is known as *hyostylic*. In the more primitive Chondrichthyes (Notidani and early Heterodonti among Selachii, Pleuracanthodii, Acanthodii and Cladoselachii), the quadrate region is articulated directly to the skull through an otic process and is, at the same time, suspended by the hyomandibular: this condition is described as *amphistylic*.

Both the hyomandibular and the symplectic, forming the suspensorium are replacing bones.

(c) *The Hyobranchial Skeleton*.—The four elements of the hyoid cornu form a compact series of bones attached to the inner surface of the anterior end of the inter-opercular. The *epi-hyal* is more or less a triangular piece of bone suturally connected with the posterior end of the cerato-hyal. Ventrally and slightly externally its anterior end gives attachment to the third or posteriormost branchiostegal ray. The *cerato-hyal* is a flat piece of bone, lying just in front of the epi-hyal and articulating anteriorly with two small hypo-hyals. The first branchiostegal ray is attached internally while the second ray is attached externally along its ventral border. The *hypo-hyals* are two small pieces of bone, one of which (the dorsal) articulates with the antero-dorsal edge, the other (the ventral) with the antero-ventral edge of the cerato-hyal. The ventral hypo-hyal is connected with the corresponding hypo-hyal of the opposite side in the middle line. Interposed between the hypo-hyals of the two sides, is a small median bone—the *basi-hyal*—which is a small cylindrical bone dilated both at its anterior and posterior ends. It articulates posteriorly with the anterior end of the basi-branchiostegal bone or uro-hyal. Dorsal to and in between the epi-hyal and the symplectic is a small piece of bone, the *stylo-hyal* or *inter-hyal*, which is connected ventrally with the epi-hyal and externally with the pre-opercular bone.

Of the investing bones which support the operculum (figs. 21 and 22), the *opercular* is the largest and the most prominent. It has a slightly concave inner surface and a convex external surface. The anterior edge is partly overlapped by the pre-opercular and partly by the inter-opercular. The dorsal edge is firmly attached to the lateral edge of the pterotic through stout ligaments. The posterior border, which overlaps the supra-cleithrum of the pectoral girdle, forms a large curve and imperceptibly passes into the ventral border, which overlaps the sub-opercular bone, the two bones being firmly bound together. In the upper part of its anterior border, the opercular bone presents a facet for articulation with the hyomandibular. The inner surface of the upper part of the bone presents a shallow depression for the insertion of the connective tissue connecting the hyomandibular and the opercular bone.

In front of and partly overlapping the anterior border of the opercular bone is the large *pre-opercular*. It is a large crescent-shaped bone, with the hollow of the crescent directed upwards. Anteriorly it articulates with the quadrate and the symplectic and postero-dorsally with the hyomandibular and ventrally with the opercular and inter-opercular. Its upper triangular corner fits into a groove in the hyomandibular.

The *sub-opercular* is an elongated sabre-shaped bone which lies below and internal to the opercular. Anteriorly it articulates

with and is slightly overlapped by the inter-opercular. The ventral border of the bone overlaps the hinder part of the posterior branchiostegal ray.

The *inter-opercular* is a long stout bone which lies all along the ventral border of the pre-opercular bone. Anteriorly it is bound by ligaments to the angular, dorsally it is overlapped by the pre-opercular bone, while posteriorly it overlaps the anterior end of the opercular and sub-opercular bones. Its ventral border is slightly curved, and forms the anterior half of the ventral edge of the gill-cover or operculum and overlaps the upper half of the posterior branchiostegal ray. Along its inner surface, the anterior end is covered over by the cerato- and epi-hyal bones which are firmly attached to it.

The *branchiostegal rays* are three long, curved, sabre-shaped bones, the anteriormost of which is the smallest and is attached along the lower edge of the cerato-hyal; the second lies along the outer surface of the cerato-hyal partially overlapping the first branchiostegal ray, while the third ray, which is the longest of the series, is attached to the outer surface of the epi-hyal and partially overlaps the preceding ray. All the three rays are connected anteriorly with the ventral border of the inter-opercular bone by means of a membrane—the *branchiostegal membrane*.

The *basi-branchiostegal* or *uro-hyal* (figs. 19, 20 and 23) is an unpaired triradiate bone, lying posterior to the basi-hyal in between the epi-, cerato-, and hypo-hyals of the two sides and passing backwards between the sternohyoid muscles. It is generally considered to be an ossification of the median ligament¹ and is peculiar to the Teleostei. The two ventral wings of the bone lie adjacent to each other more or less in a horizontal plane while the third wing is placed in the middle line vertically at right angles to the first two. All the three wings attain their greatest width at their posterior ends and converge anteriorly, where the bone presents a triangular appearance. At its anterior end it articulates with the posterior end of the basi-hyal.

The Branchial arches.

The remaining five arches are known as the *branchial arches* (figs. 20 and 24), of which the first four support the pharyngeal wall and the gills while the fifth arch is reduced to a single bone on each side and is called the *inferior pharyngeal bone*. Each branchial arch on either side is typically ossified by four replacing bones: a dorsal *pharyngo-branchial*, a lateral *epi-branchial*, a large ventral *cerato-branchial* and a small *hypo-branchial*. The first three arches contain all the four segments, except, however, the

¹ Goodrich, E. S.—*Studies on the Structure and Development of Vertebrates*, p. 443 (London: 1930).

third arch in which the hypo-branchial forms an unpaired median piece. In the fourth arch, the pharyngo-branchial is unossified, and the hypo-branchial is absent; while the fifth arch consists of the paired inferior pharyngeal bones which represent the enlarged cerato-branchials of this arch. The right and left hypo-branchials are connected with a single unpaired *basi-branchial*, which is connected anteriorly with the basi-hyal. The hypo-branchials, the basi-branchial and the basi-hyal together form a median ventral plate in the floor of the pharynx.

The *pharyngo-branchials* are small pieces of bone lying obliquely in the dorsal wall of the pharynx. Those of the first three arches are ossified while that of the fourth is unossified. The second and the third pharyngo-branchials are fused together. Dorsally they are connected with the prootic bone of the auditory region by means of ligaments, ventrally they are connected with the epi-branchials. The *epi-branchials* are curved elongated

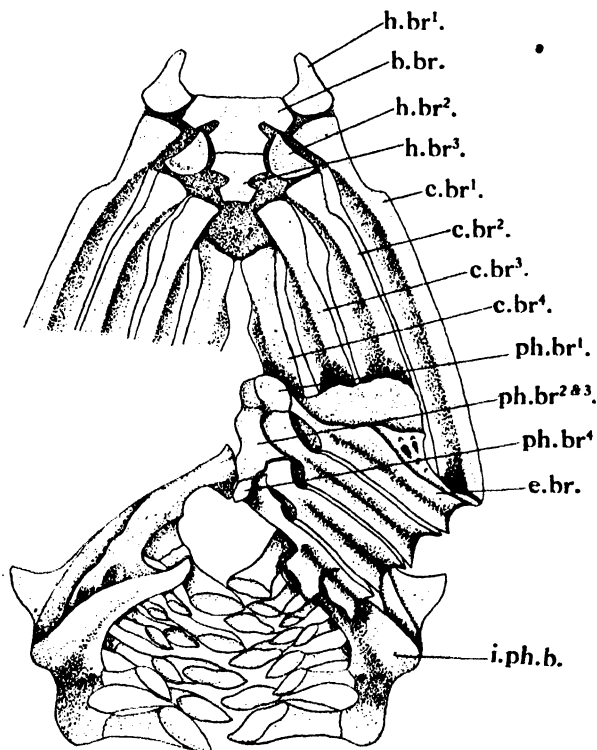


FIG. 24. Dorsal view of branchial arches. ($\times ca 1\frac{1}{2}$). *b.br.*, basi-branchial; *c.br.* 1-4, first, second, third, and fourth cerato-branchial; *e.br.*, epi-branchial; *h.br.* 1-3, first, second, and third hypo-branchial; *i.ph.b.*, inferior pharyngeal bone; *p.br.* 1-4, first, second, third, and fourth pharyngo-branchial.

bones grooved along their posterior surfaces; they lie in an obliquely vertical position directed slightly backwards and outwards and articulate dorsally with the pharyngo-branchials and ventrally with the cerato-branchials. The pharyngo-branchials form the dorsal part of each arch, the epi-branchials the lateral part, whereas the cerato-branchials and the hypo-branchials form the ventral part. The junction of the dorsal and the ventral part of the arches is formed by a cartilaginous hinge-joint between the epi-branchials and the cerato-branchials. The *cerato-branchials* are elongated rod-like bones grooved along their ventral surfaces. They are directed forwards and inwards and form the greater part of the arches and support the ventro-lateral wall of the pharynx. Each of the first three cerato-branchials articulates anteriorly with its hypo-branchial, the fourth cerato-branchial, however, is bound by connective tissue to the cerato-branchial of the third arch.

Both the epi-branchials and the cerato-branchials are grooved along their outer surfaces and are V-shaped in cross-section. The arms of the V form the two edges of the groove, in which runs the branchial artery, while to the edges are attached the gill-filaments. At the apex of the V along the whole length of the epi-branchials and cerato-branchials are borne dorsally a double row of small processes—the *gill-rakers*—which serve as a sieve to prevent the escape of food through the gill-slits.

Anteriorly, the cerato-branchials are connected with the hypo-branchials of their own arches. The first hypo-branchial is more or less triangular in appearance, the apex of the triangle being directed anteriorly. It articulates ventrally with the antero-lateral edge of a small flattened median piece, the *basi-branchial*. The second hypo-branchial is more or less semi-circular in outline. Posteriorly it articulates with the cerato-branchial of the second arch, antero-mesially it articulates with the postero-lateral edge of the median *basi-branchial*. The third hypo-branchial is a flat median piece to which are bound postero-laterally the cerato-branchials of the third arch. Anteriorly it is suturally connected with the median *basi-branchial*. The *basi-branchial* is a median flat piece of bone, which articulates antero-laterally with the first hypo-branchial, postero-laterally with the second hypo-branchial and posteriorly with the median hypo-branchial of the third arch. Anteriorly it is connected with the *basi-hyal*. The hypo-branchials along with the *basi-branchial* and the *basi-hyal* form a ventral plate of bone which supports the floor of the pharynx.

The fifth arch consisting of a pair of *inferior pharyngeal bones* are highly modified and correspond to the cerato-branchials of other arches. Each is more or less triangular in shape and lies in an obliquely horizontal position immediately behind the fourth arch. The apex of the triangle is directed upwards and back-

wards and fits into the cup-like hollow of the auditory capsule, whereas the base is directed obliquely forwards and downwards. Of the remaining two sides of the triangle, one is directed postero-ventrally and is convex in outline, while the other is directed antero-dorsally and is highly concave. All the three apices of the triangle are produced into strong processes; one of which is directed forwards, the other directed ventrally, while the third points upwards. The anterior process of each bone meets the corresponding process of the bone of the opposite side in the middle line and is firmly bound to it by means of connective tissue. From the ventral process arise two thick muscles: the first muscle runs forwards and is attached to the outer surface of the cleithrum; its contraction pulls the bone forwards and downwards. The second muscle runs backwards and slightly inwards and upwards and is attached to the ventrolateral surface of the centrum of the fused third and fourth vertebræ; its contraction pulls the bone backwards. From the postero-ventral side of the bone, arises a stout band of muscles which are attached to the inner surface of the hollow of the auditory capsule; its contraction pulls the bone upwards. The outer surface of the triangle is highly fenestrated while the inner surface bears large and strong teeth arranged in three rows. The first or the innermost row comprises five teeth, the second row comprises three while the third row comprises only two. These teeth work against the horny pad on the masticatory process of the basi-occipital. The contraction of the anterior muscle pulls the teeth away from the horny pad, thereby broadening the passage to the stomach; the contraction of the posterior and the dorsal muscles brings the teeth nearer the pad against which they bite. It may be noted, that this is the only bone in the skull of *Rohu*, which bears teeth.

II. The Appendicular Skeleton.

The pectoral and pelvic girdles together with the skeleton of the fins attached to them constitute the appendicular skeleton. The pectoral girdle lies immediately behind and beneath the last branchial arch, while the pelvic girdle lies in the abdominal region, a little distance in front of the anal fin.

(A) The Pectoral Girdle.

The *pectoral girdle* (fig. 25) consists of a 'primary' *endoskeletal* girdle which is more or less reduced and a 'secondary' *dermal* girdle which is much more highly developed than the primary girdle.

The primary girdle consists of two distinct lateral halves which do not meet in the middle line; each half is ossified into three replacing bones—a *scapula*, a *coracoid*, and a *meso-*

coracoid. The large secondary dermal girdle consists on each side of a large *cleithrum*, a *supra-cleithrum*, a *post-temporal* and a *post-cleithrum*, which are all investing bones. These dermal bones form the posterior boundary of the gill-chambers as well as places of support for the opercular bones which fit on to them. Further, the dermal girdle is connected on each side with the pterotic process in the posterior region of the skull by means of the post-temporal.

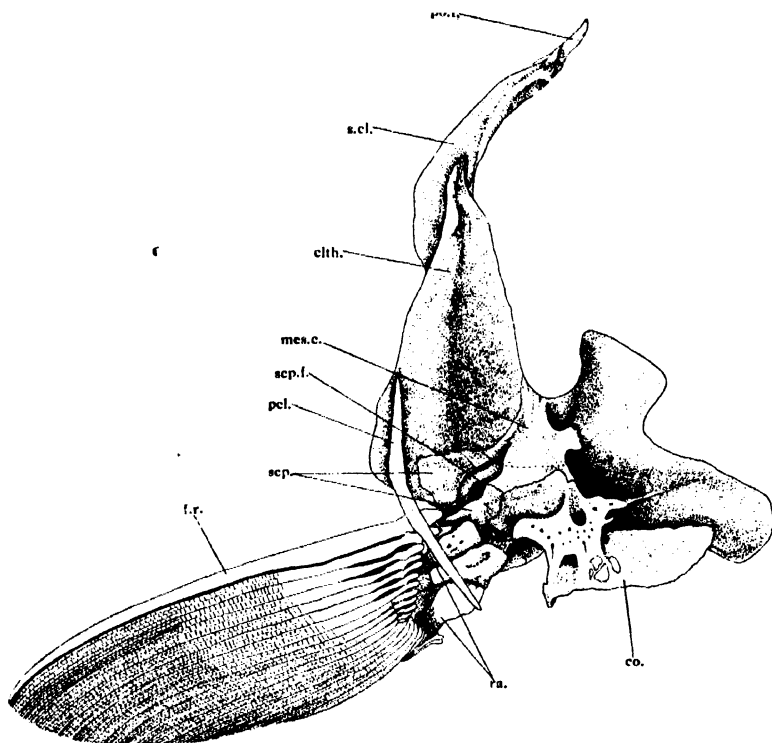


FIG. 25. Inner view of the left half of the pectoral girdle and fin. ($\times ca \frac{1}{2}$). *clth.*, cleithrum; *co.*, coracoid; *f.r.*, fin-ray; *mes.c.*, meso-coracoid; *pcl.*, post-cleithrum; *post.t.*, post-temporal; *ra.*, radial; *s.cl.*, supra-cleithrum; *scp.*, scapula; *scp.f.*, scapular foramen.

The three elements of the primary shoulder girdle form a compact series of small bones attached to the postero-ventral surface of the cleithrum. The *scapula* is a ring-shaped bone lying laterally on the inner surface of the cleithrum; it is provided with two flattened outgrowths—a lateral and a mesial. The lateral outgrowth is closely applied to the inner surface of the cleithrum, whereas the mesial outgrowth articulates internally with the meso-coracoid and the coracoid and

posteriorly with the first and second radials (*brachial ossicles*). The scapular region is hollowed out by a muscle-canal which is closed dorsally by a meso-coracoid arch and through which pass the dorso-medial muscles of the fin. Through the large foramen of the ring or the so-called *scapular foramen* pass the brachial artery and the brachial nerve. The *coracoid* is a large fenestrated bone, irregularly triangular in shape lying in an obliquely vertical position internal to the scapula and ventral to the meso-coracoid. The anterior ends of the two coracoids converge towards the mid-ventral line and articulate with a ridge borne on the anterior median processes of the cleithra, leaving a large elongated fissure on each side between the coracoid and the cleithrum. The posterior end of each coracoid articulates laterally with the scapula, dorsally with the meso-coracoid and posteriorly with the mesial outgrowth of the scapula and the second and third radials. The inner margin of the posterior third of the coracoid is suturally connected with the inner margin of a horizontal ridge given off from the inner surface of the cleithrum. The *meso-coracoid* is an inverted Y-shaped bone which lies closely attached to the inner surface of the cleithrum; the inner limb of the Y articulates ventrally with the coracoid and with the mesial outgrowth of the scapula; while the outer limb and the main shank of the Y are closely applied to the inner surface of the cleithrum, the outer limb also articulating ventrally with the external or the lateral scapular outgrowth. The scapula and the coracoid both share in the formation of the *glenoid articulation*, to which three of the four radials are movably articulated.

In the secondary pectoral girdle, the *cleithrum* or *clavicle* is the largest and the most prominent bone completely covering the primary girdle on the outside. It is crescent-shaped in appearance and consists of two distinct portions: a triangular posterior vertical portion and a large anterior obliquely horizontal portion, the two portions being separated from each other by a crescentic ridge. The obliquely horizontal portion forms the ventral and posterior boundary of the branchial chamber; when the branchial chamber is closed, the posterior edge of the operculum fits against the crescentic ridge separating the two portions of the cleithrum. The anterior ventral end of the bone extends forwards beneath the gill-chamber and articulates firmly with the corresponding part of its fellow of the opposite side in the median line. The inner margin of the horizontal portion is produced into a broad and truncated flat process which is bound by means of connective tissue with the corresponding process of the other side. Just behind and above this process lies the fifth branchial arch. The dorsal surface of the cleithrum gives attachment to the anterior (first) muscle of the inferior pharyngeal bone. The inner or the ventral surface of the cleithrum presents two high ridges, an anterior, to which is

attached the anterior end of the coracoid and a posterior, running obliquely inwards and backwards, with the posterior edge of which articulate the coracoid and the scapula. The dorso-posterior portion of the cleithrum presents a deep hollow on its inner surface which is filled in with muscles during life. Embedded in these muscles and connected by means of ligaments to the inner surface of the posterior end of the triangular vertical portion is a stout curved rod-like bone—the *post-cleithrum*—which passes inwards and downwards lying internal to and across the radials. The dorsal end of the cleithrum forms a triangular piece which is covered over externally by the distal end of an elongated bone—the *supra-cleithrum*.

The *supra-cleithrum* is dagger-shaped in appearance and articulates with the outer surface of the dorsal end of the cleithrum. Externally it is covered over and partly overlapped by the posterior edge of the opercular bone. At its dorsal end, the *supra-cleithrum* articulates with a small conical bone—the *post-temporal*. The *post-temporal* fits into a groove on the dorsal surface of the pterotic and articulates anteriorly with the *supra-temporal* bone which partially overlaps the *post-temporal*.

(B) *The Skeleton of the Pectoral Fin.*

The skeleton of the pectoral fin like that of the median fins consists of two sets of structures: (a) the radials and (b) the dermal fin-rays (lepidotrichia).

The pectoral fin is supported by nineteen lepidotrichia, which are seated on four ossicles—the radials. The radials articulate directly with the scapula and the coracoid at the glenoid articulation. The first or the pre-axial radial is a stout bony piece which articulates with the posterior end of the scapula. The second radial, which is slightly bigger, articulates with the ventral edge of the scapula. The third radial is the biggest of the series and is connected by means of stout ligaments to the posterior end of the coracoid. The fourth or the post-axial radial abuts against the ventral edge of the third radial and does not form part of the glenoid articulation. The fin-rays which support the triangular pectoral fin are long slender jointed bony rods having essentially the same characters as those of the unpaired fins. The first or the pre-axial ray is the largest and unbranched. The two lepidotrichia of which the first ray is composed can be easily distinguished: one of them articulates directly with the scapula and the other with the first radial. The first three radials carry four rays each, while the fourth carries seven rays. The rays decrease in size as we pass from the pre-axial to the post-axial margin of the fin.

(C) The Pelvic Girdle.

The pelvic girdle (fig. 26), unlike the pectoral, consists only of endo-chondral bones and small remains of the original cartilage. Each half of the originally cartilaginous girdle ossifies in the form of a separate bone called the *pelvic bone*¹ which lies in the ventral body-wall. A small piece at the hind end of the original cartilage remains unossified and this is attached as a small cartilaginous rod to the posterior end of the pelvic bone. Each pelvic bone consists of two parts: an anterior elongated broad portion which bears a prominent deep groove on its ventral surface and is forked in front and a posterior stout rod-like process which continues backwards into the narrow elongated piece of cartilage. The posterior process lies along the inner border of the pelvic fin and is connected with its fellow of the opposite side in the middle line. The anterior forked moiety is connected by means of ligaments to the rib of the twelfth trunk vertebra. The outer edge of the bone is almost straight while the inner edge is slightly curved.

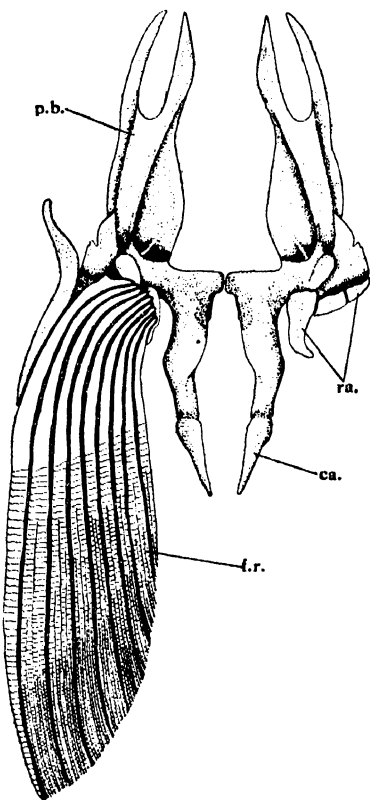


FIG. 26. Ventral view of the pelvic girdle and the right pelvic fin. (\times ca $1\frac{1}{2}$). ca., cartilage; f.r., fin-ray; p.b., pelvic bone; ra., radial.

(D) The Skeleton of the Pelvic Fin.

The pelvic fin is supported by nine fin-rays which are attached proximally to three small ossicles—the *radials*—these radials being in turn connected with the posterior border of the pelvic bone. The first or the outer radial is a double piece more or less triangular in shape. The second or the middle radial which is slightly bigger is again a double piece quadrangular in shape. The third radial is the biggest of the series

¹ Goodrich, E. S.—On the Pelvic Girdle and Fin of *Eusthenopteron*, *Q.J.M.S.*, V, 45, 1901.

and is represented by a single slightly curved piece thickened at its proximal end. The nine fin-rays which support the triangular pelvic fin are long slender jointed bony rods having essentially the same characters as those of the pectoral fins. The first or the pre-axial is the largest and is jointed but unbranched ; while the remaining eight are jointed as well as branched. Besides these nine fin-rays, there is an extra curved piece of bone, attached to the proximal end of the first fin-ray. This is probably a supernumerary fin-ray.

Of the nine fin-rays proper, the first two radials carry two rays each, while the third carries five rays.

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Weather Types associated with Nor'-westers in Bengal.

By V. V. SOHONI.

SYNOPSIS.

The results of examining the Indian Daily Weather Reports of March, April, and May for 15 years, 1912-1926, lead to the definition of a nor'-wester day in Bengal, viz. a day on which at least 3 out of the 13 stations report thunderstorm phenomena. The most important types of weather associated with nor'-wester days are—the western disturbance type which is most common in March and April, the east-west gradient over Bengal type which is as common as the first, in May; and the temperature contrast type.

It seems that nor'-wester days generally occur when air masses probably with different histories and hence presumably different properties, e.g. Indian continental air and the Bay of Bengal maritime air, are in juxtaposition in Bengal or adjacent districts.

INTRODUCTION.

The thunderstorms and duststorms of the hot weather are familiarly known in Bengal and the adjoining provinces as nor'-westers. They are spectacular phenomena, which occasionally cause serious damage to property or life.

It is perhaps of some historical interest to refer here to the picture in Plate 12, Fig. 1. It is a copy of a sketch of a nor'-wester as seen from a place known as Respondentia Walk on the river side in Calcutta a century ago. The original, drawn in 1825, was the work of a certain J. B. Fraser, and a coloured lithograph of it is kept in the Victoria Memorial Hall in Calcutta, by the courtesy of whose authorities the reproduction was prepared.

In a previous paper (India Meteorological Department, Scientific Notes, Vol. I, No. 3) the present writer reviewed the characteristics of some 500 thunderstorms of Calcutta as recorded by autographic instruments during a period of over 25 years. A large majority of these thunderstorms were nor'-westers.

METHOD OF TREATMENT.

In order to find out whether any definite types of weather, as illustrated by the 8 A.M. weather charts of the Indian Daily Weather Report, are associated with the occurrence of nor'-westers in Bengal the following plan was adopted. The Indian

Daily Weather Reports of March, April, and May for the period of 15 years, 1912–1926, were consulted. Weather remarks were taken note of and remarks like thunderstorm, hailstorm, thunder, duststorm or nor'-wester were taken to represent phenomena of one family. In regard to this, one must bear in mind the element of uncertainty, which creeps in on account of the personal equation of observers at different stations. Consequently there is the possibility of the omission of any remark about the occurrence of thunderstorms, etc., perhaps by most observers on some occasions in a random fashion, and perhaps by some observers systematically for certain periods. But it is believed that as the period examined extended over 15 years this factor of error is not important.

The 15 years 1912–1926 were such that during the period the reporting stations in the divisions, Bengal, Chota Nagpur, Orissa and Bihar were constant and identical. Bengal with its area of 82 thousand square miles had 13 stations, Chota Nagpur and Orissa taken together, with area of 69 thousand square miles had 6, and Bihar with its area of 42 thousand square miles had 5 stations.

All days on which there were three or more stations in Bengal, Chota Nagpur, Orissa and Bihar reporting thunderstorm phenomena, were noted on forms of which the following is a specimen.

YEAR 1914.

Month April.

Date of Weather Report.	NUMBER OF STATIONS REPORT- ING THUNDERSTORMS.			REMARKS.
	Bengal.	Orissa and Chota Nagpur.	Bihar.	
1	2	2	0	Low pressure wave yes- terday.
2	6	3	0) Trough over Bihar, Ben- gal with indraught of Bay winds.
3	8	2	0	
4	3	2	0	
5	6	2	1	
6	1	2	0	Nothing very marked.
7	4	3	0	} Marked western depres- sion over central parts and its passage east- wards.
8	8	1	0	
9	6	0	0	
10	7	1	1	

Date of Weather Report.	NUMBER OF STATIONS REPORT- ING THUNDERSTORMS.			REMARKS.
	Bengal.	Orissa and Chota Nagpur.	Bihar.	
13	2	1	0	Disturbance affecting ex- treme north of India.
14	5	0	0	} Connected with above disturbance.
15	4	1	1	
16	3	3	0	
17	1	3	0	Nothing special noted.
18	7	2	0	} Ill-defined disturbance passing over north-east India.
19	2	1	0	
20	2	1	0	
21	4	0	0	} Nothing special noted.
22	3	1	0	
23	6	2	0	
24	7	1	0	
25	4	1	0	
26	4	1	1	} E-W gradient over north- east India.
27	2	1	1	
28	8	3	0	} Very marked gradient at head of Bay.
29	6	1	0	
30	2	1	0	
TOTAL No. 28	123	42	5	

After summarising the number of 'station-reports' of thunder and the number of days for each of the months, March, April, and May, a somewhat arbitrary definition of what one may call an average *nor'-wester day* in Bengal was fixed. Thus a *nor'-wester day* in Bengal is one which on an average has three stations, out of 13, reporting thunderstorm phenomena. Table I below shows that in Bengal in March, on an average, there are 6 'nor'-wester days' and 18 'station reports'; in April 14 'nor'-wester days' and 51 'station reports'; and in May 16 'nor'-wester days' and 48 'station reports'. Incidentally the mean values in the same table show the relative occurrence of thunderstorms in (a) Bengal, (b) Chota Nagpur and Orissa, and (c) Bihar. After proportionate weighting on account of differences in areas and varying numbers of stations, it is seen, that roughly speaking, the thunderstorm liability of the areas (a), (b), and (c) is as 10:7:1.

TABLE I.

Year.	MARCH.				APRIL.				MAY.			
	N	Bengal.	Chota Nagpur and Orissa.	Bihar.	N	Bengal.	Chota Nagpur and Orissa.	Bihar.	N	Bengal.	Chota Nagpur and Orissa.	Bihar.
1912	8	27	10	6	19	73	28	2	18	56	24	14
1913	2	4	4	0	4	16	5	1	16	51	37	9
1914	5	14	5	0	28	123	42	5	19	62	36	3
1915	13	45	19	1	13	50	17	1	26	77	51	7
1916	5	12	5	0	20	70	26	11	11	29	20	3
1917	3	9	4	0	15	60	20	3	18	58	30	0
1918	7	28	11	1	15	48	21	4	21	57	33	1
1919	7	15	15	1	21	80	34	2	23	76	42	1
1920	16	54	24	4	12	35	16	2	14	40	18	3
1921	3	9	1	0	16	65	10	7	12	42	9	4
1922	4	15	1	3	11	33	3	1	14	40	21	8
1923	2	5	3	1	8	17	8	4	12	37	13	3
1924	0	0	0	0	11	49	6	4	13	35	17	3
1925	3	13	0	0	10	34	9	2	7	23	5	2
1926	8	23	7	3	4	15	1	3	10	34	6	2
Sum	86	273	109	20	207	768	246	52	234	717	362	63
Mean	5.7	18.2	7.3	1.3	13.8	51.2	16.4	3.5	15.6	47.8	24.1	4.2

N=Number of days with 3 or more 'station reports' of thunderstorm in Bengal, Chota Nagpur, Orissa and Bihar taken together.

Figures under Bengal, Chota Nagpur, and Orissa and Bihar represent number of 'station reports' in the month.

After fixing upon the above-mentioned working definition of a 'nor'-wester day' in Bengal, days which contained less than three station reports of thunderstorms were neglected: and the main features of the conditions associated with the nor'-wester days, as inferred from the weather reports, were classified under different heads. These heads were:—

- (1) The eastward passage of Western depressions or disturbances across northern India—either definite depressions or shallow low pressure areas or waves of low pressure.
- (2) Pronounced East-West pressure gradient across Bengal and the adjoining provinces, in other words a North-South trend of the isobars, with a pressure gradient not less than about 50% above normal.
- (3) Marked temperature contrasts in adjoining areas in north-east India *as shown by the isopleths of departure from mean temperature*. In such contrasts the most common features were high temperature in Assam and low temperature in an area, generally either in Bihar and Orissa or the United Provinces or the Central Provinces.
- (4) Disturbances in the Bay.
- (5) Inflow of moist Bay winds into Bengal after the passage of Bay storms into Arakan and Upper Burma.
- (6) An advance of the monsoon.
- (7) Absence of any ostensible reason.

The classification into (1), (2), and (3), is, in effect, not a classification into inherently distinct compartments. It is well within the range of probability that a number of cases of (2), and possibly some of (3) were also cases of (1). When a case was put under (2) or (3), rather than under (1), it meant that judging from the Daily Weather Report alone, there was no indication that it could go under (1).

The instances of (4), (5), and (6) are too few to justify their being recognised as very definite types, and from the physical point of view at least (5) and (6) may be classed together.

It is not uncommon to find nor'-wester days occurring in spells, occasionally extending to 4 or 5 days at a time. This is especially so in April and May.

Table II below gives the number of nor'-wester days, year by year, while Table III summarises the classification of the days according to associated weather types.

TABLE II.

Number of nor'-wester days in Bengal.

Year.	March.	April.	May.
1912	5	15	10
1913	1	4	8
1914	4	20	12
1915	7	9	13
1916	2	13	7
1917	2	14	14
1918	6	10	11
1919	3	17	15
1920	12	8	7
1921	2	15	9
1922	3	7	8
1923	1	2	7
1924	0	11	8
1925	3	6	6
1926	5	4	7
Sum	56	155	142
Mean	3·7	10·3	9·5

TABLE III.

Nor'-wester days in Bengal, 1912-1926 and weather types.

Types.	MARCH.		APRIL.		MAY.	
	No. of days.	Per cent. of total.	No. of days.	Per cent. of total.	No. of days.	Per cent. of total.
	56		155		142	
Western depression lows or waves of low pressure.	50	89	108	70	44	31

Types.	MARCH.		APRIL.		MAY.	
	No. of days.	Per cent. of total.	No. of days.	Per cent. of total.	No. of days.	Per cent. of total.
	56		155		142	
East-West Pressure Gradient.	1	2	17	11	55	39
Temperature contrast.	3	5	16	10	14	10
Disturbance in the Bay.	0	0	0	0	4	3
After storm disappears generally into Burma.	0	0	0	0	7	5
Advance of monsoon.	0	0	0	0	2	1
Unaccounted for.	2	4	14	9	16	11

In the course of examination of the weather reports, a number of cases came to notice in which storms or depressions from the sea came up into the north of the Bay and either went west into Orissa or east into Arakan.¹ In the case of these storms although there was occasionally more or less widespread rainfall in Bengal, chiefly in its eastern districts, conditions generally did not give rise to nor'-wester days: this was especially so in the case of storms that went to Arakan.

In connection with this subject of types, it is desirable to consider what types of weather prevail on days which are *non-nor'-wester* days for Bengal. Examination of a few years' charts showed that generally such days were characterised by one or more of the following features on the weather map:—

- (a) Absence of recognised western depressions or moving *lows* over northern India. Disturbances, even if active, so long as they were confined to the extreme north-west of India, did not affect Bengal favourably for giving rise to nor'-wester days.
- (b) Absence of pressure gradient over the greater portion of Indian area; in other words a *flat* pressure map. Such conditions were frequent in March and less so in April.

¹ These storms or depressions occurred in April 1922, and May 1912, 1914, 1915, 1917, 1918, 1923, 1924, and 1925.

- (c) Absence of marked east-west pressure gradient over Bengal in particular, and over north-east India and the adjoining region to the west, in general.
- (d) Anticyclonic distribution of pressure, especially over north-west India.
- (e) On a generally *flat* pressure map, a relative *high* somewhere in the area comprising the United Provinces, Central India, the Central Provinces, and the adjacent portions of other provinces.

TENTATIVE CONCLUSIONS.

In the case of western disturbances and similar *lows*, which seem to be pre-eminently associated with nor'-wester days, at least in March and April, it is most probable that on the one hand there is the continental air brought by the westerly winds, from the Gangetic plain, and on the other the induced flow of maritime winds from the Bay. So also in the case of the east-west pressure gradient over Bengal, due to what may be called the accentuated May-type of pressure distribution over north-east India, we have the same thing happening, but this time, without the presence of a recognisable western depression. We have the north Indian continental air in juxtaposition with the air from the Bay flowing into north-east India under the influence of or in association with the pressure gradient. In May when the western depressions of cold weather type are no longer of frequent occurrence, or at least not recognisable as such, in the Daily Weather Reports, this gradient type surpasses in frequency the western disturbance type.

It may not be wrong to infer from the study of the Daily Weather Reports alone as summarised in Table III that nor'-wester days in Bengal probably occur when masses of air with different histories and therefore presumably different properties, meet somewhere over Bengal or the adjacent districts to the west.

In the case of nor'-wester days on which nothing except 'temperature contrasts' could be attributed as the predisposing cause, it is possible that the storms were of pure *heat* variety.

In the comparatively rare instances of nor'-wester days associated with a disturbance in the Bay, there is also presumably an incursion of maritime air from the Bay, into Bengal. A similar state of things must be responsible for the rare nor'-wester days after the disappearance of a storm in north Burma. The stream of air of marine origin, which temporarily under the influence of the storm, is diverted into Burma, is free after its disappearance, to flow into north-east India; and there meets with the north Indian air of presumably different properties.

A few illustrations of the three main types of weather charts associated with nor'-wester days are given at the end. They are :—

Western depression, etc.	{	6 April, 1913 (Fig. 2).
		7 April, 1914 (Fig. 3).
		15 May, 1923 (Fig. 4).
		11 March, 1925 (Fig. 5).
East-West Pressure Gradient.	{	28 April, 1914 (Fig. 6).
		29 May, 1914 (Fig. 7).
		21 May, 1915 (Fig. 8).
Temperature Contrast.	{	5 April, 1919 (Fig. 9).
		6 April, 1919 (Fig. 10).
		17 April, 1925 (Fig. 11).
		13 May, 1926 (Fig. 12).

These tentative conclusions are put forward with hesitation because they are based on impressions gathered from the inspection of Daily Weather Reports only.

The mechanism of nor'-wester formation cannot be understood satisfactorily without knowledge of the processes in the free air and of its thermal structure. This work of *sounding* the free air over Bengal is awaiting accomplishment.

The Observatory, Alipore, Calcutta.

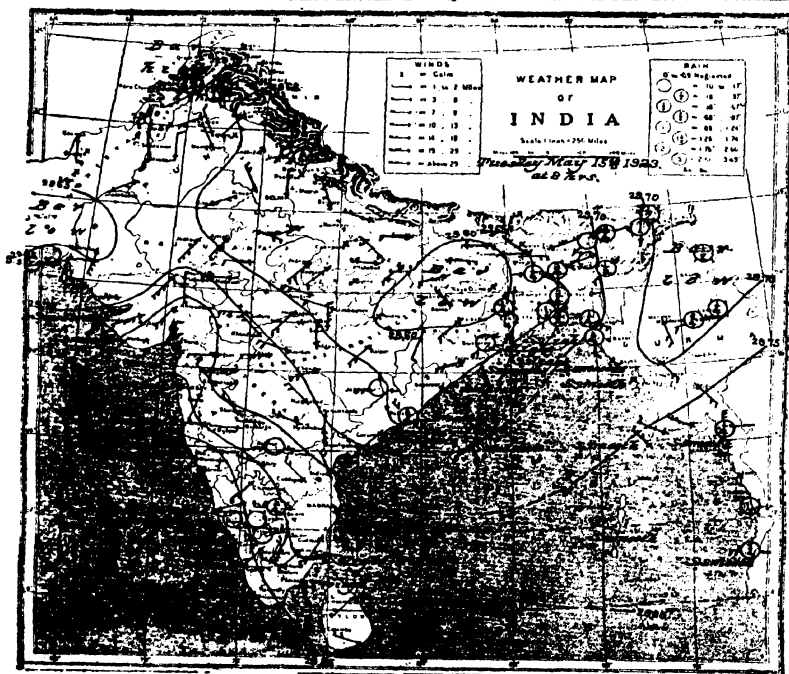
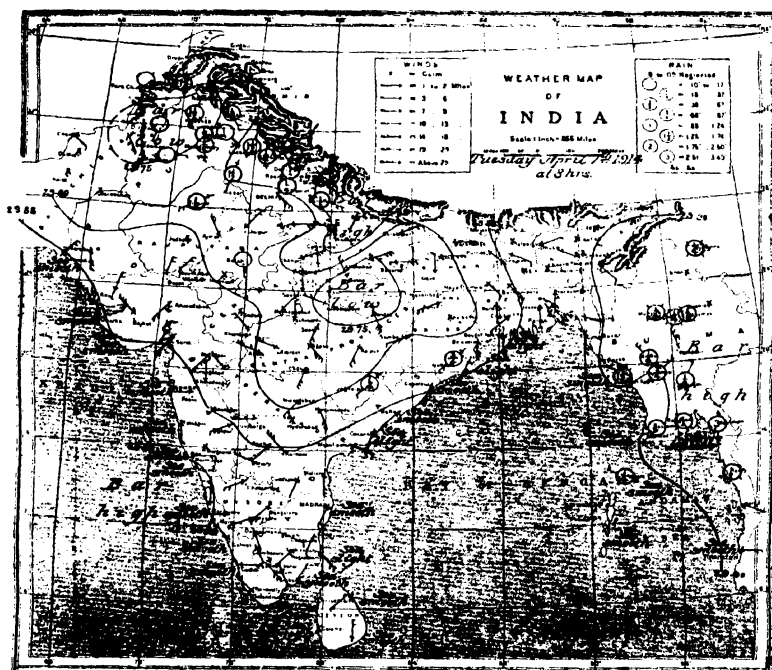
The 13th May, 1929.



FIG. 1. Fraser's Nor'-wester Scene.



FIG. 2. Western Depression Type.



FIGS. 3 AND 4. Western Depression Type.

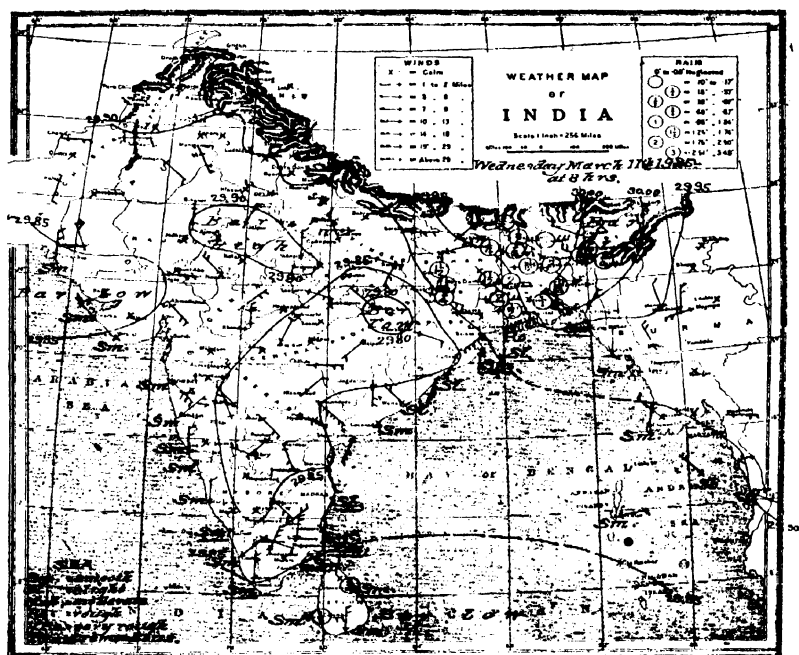


FIG. 5. Western Depression Type.

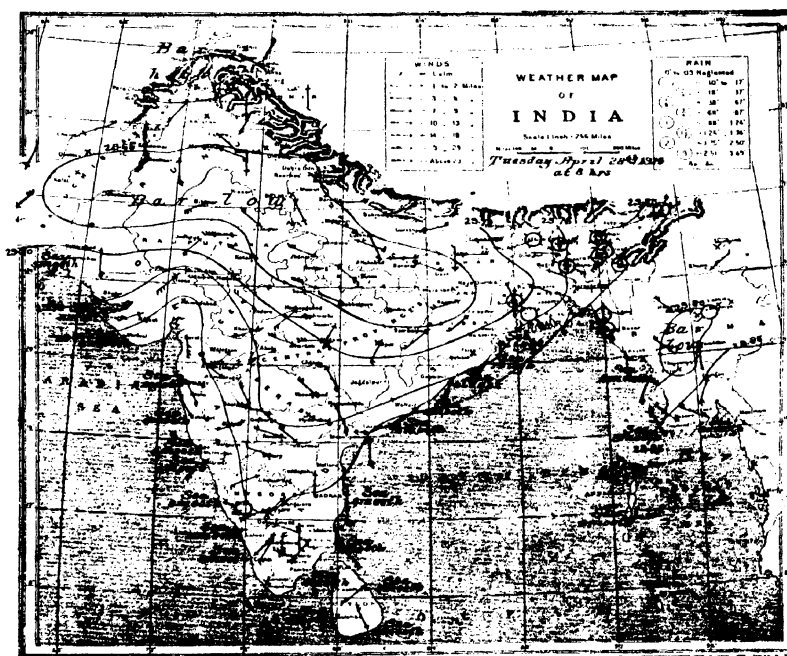
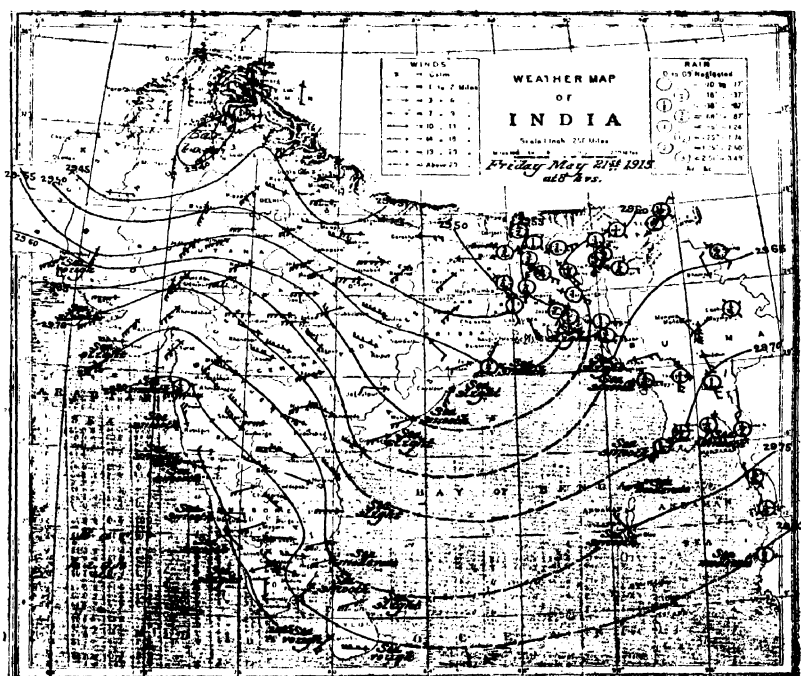
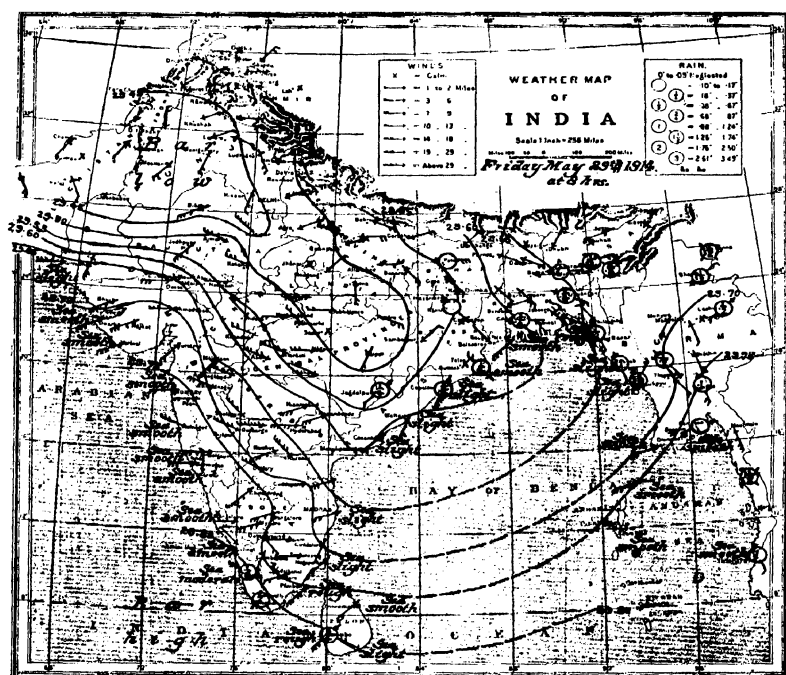
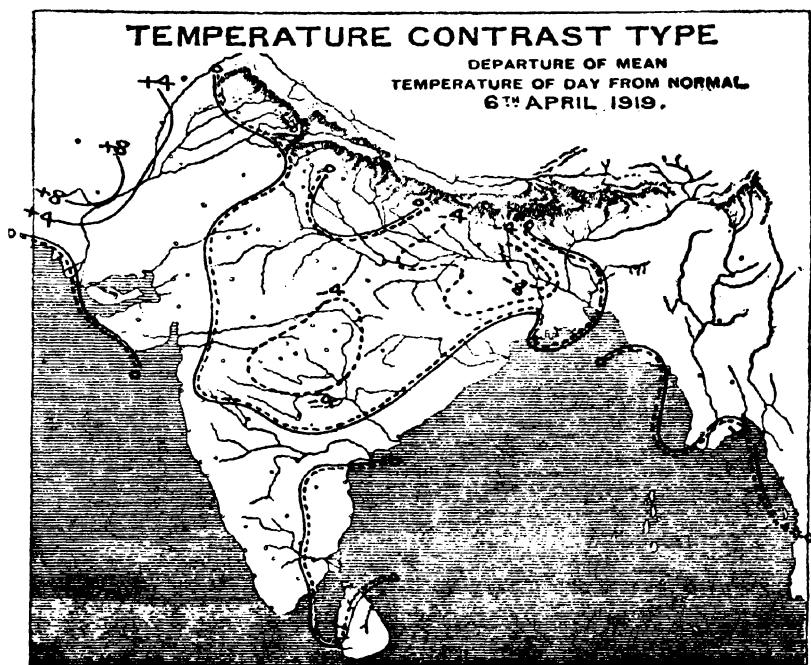
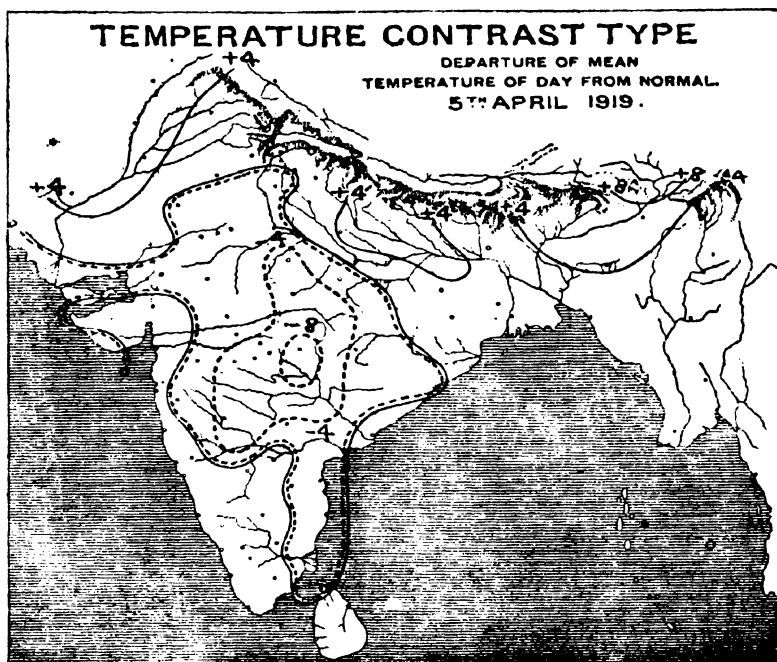


FIG. 6. East-West Pressure Gradient Type.



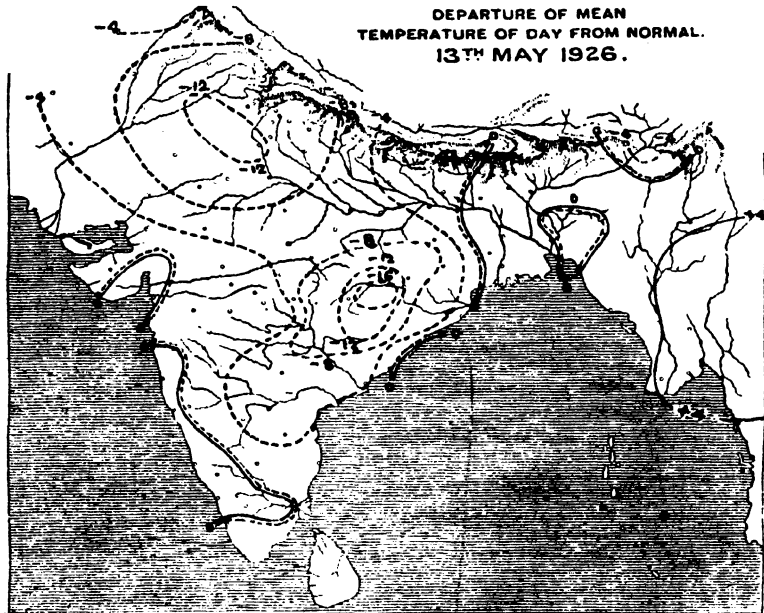
FIGS. 7 AND 8. East-West Pressure Gradient Type.



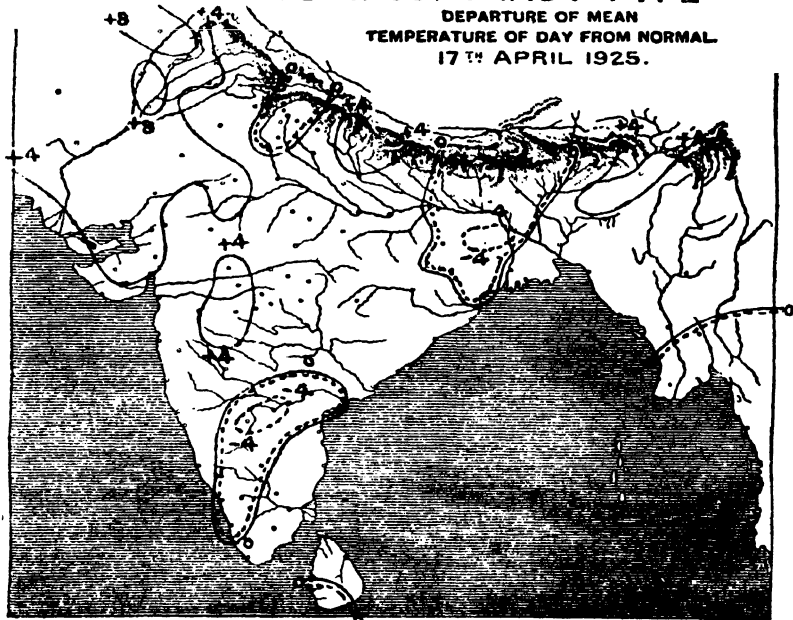
FIGS. 9 AND 10. Temperature Contrast Type.

TEMPERATURE CONTRAST TYPE

DEPARTURE OF MEAN
TEMPERATURE OF DAY FROM NORMAL.
13TH MAY 1926.

**TEMPERATURE CONTRAST TYPE**

DEPARTURE OF MEAN
TEMPERATURE OF DAY FROM NORMAL.
17TH APRIL 1925.



FIGS. 11 AND 12. Temperature Contrast Type.

Living Conifers of the Indian Empire.

By K. BISWAS.

While preparing the paper on 'The Distribution of Wild Conifers in the Indian Empire' published in the *Journal of the Indian Botanical Society*, Vol. XII, No. 1, pages 24-47, 1933, the author felt the need of drawing up a comprehensive list of names of Conifers grown in the Indian Empire. Frequently sterile specimens of Conifers received from different parts of the country without any history of its introduction or other details lead to lot of waste of time in determining their identity. Another source of trouble is the resentment to accept up-to-date nomenclature, the rules of which have been laid down by the Vienna Congress of Botanists in 1905 and approved at the last Horticultural and Botanical Congresses held in 1930. The following remark made by W. Dallimore in the Report of the Conifer Conference on page 6 of the 'Conifers in cultivation' published in 1932 is applicable to a large extent with regard to the Indian Flora :—'Opportunities for exchanging information and discussing vital questions between the officials of the various botanical institutions were rare, and the material available for examination was often scanty, therefore there was a lack of uniformity in the work accomplished and the foundation for very considerable confusion was laid. This confusion was made worse by some of the later workers, and in that way a multiplicity of names crept into gardens, many of which, although botanically obsolete, are retained to the present day'. Attempts have, therefore, been made to rectify this defect in nomenclature of the Conifers grown in this country. Recently a considerable amount of Conifers have been introduced in India, Burma, and Ceylon. Although the economic value of the Conifers is much appreciated in this country, Botanists, Foresters, Gardeners, and Amateurs show a considerable interest in cultivating Conifers in the various public and private gardens and estates in this country. E. L. Hillier in his article entitled 'Conifers of the temperate Regions of the Far East', on pages 223-242 of 'The Conifers in Cultivation' mentions only *Cephalotaxus Griffithii* Hooker, *C. Mannii* Hooker, *Cupressus torulosa* Don., *Podocarpus neriifolius* D. Don., *P. Wallichianus* C. Presl., and *Cedrus Deodara* Loud.

It is rather difficult to define exactly which species of the present day Indian Conifers are wild or cultivated under the strict sense of the terms, as some of both the wild and the cultivated ones are growing profusely side by side in suitable

habitats, the wild ones in some cases extending the limit of their area of distribution. Some of the foreign Conifers have more or less acclimatised in this country. Of such species may be mentioned *Cryptomeria japonica*, an inhabitant of Japan. This species is now under profuse cultivation in the Darjeeling District and in the Nilgiris for its timber. *Thuja orientalis*, *Juniperus chinensis* and *Cupressus funebris* of China, *Araucaria Cunninghamii* of New South Wales, *A. Cookii* of New Caledonia and others are cultivated throughout India mostly for ornamental purposes. *Podocarpus elongatus*, a native of the Cape, was introduced in the Royal Botanic Garden, Calcutta in 1842. An account of such other cultivated Conifers growing in the northern part of this country has been given by R. N. Parker, in his important papers entitled 'The Cultivated Conifers of Northern India', published in the *Indian Forester*, Vols. 50 and 51 (1924-25). From these papers one may have sufficient information regarding the prevailing position and nature of distribution of the present day cultivated and introduced Conifers of this country in such climates as at Dehra Dun, Lucknow, Saharanpur and other areas of the Upper Gangetic Plains (Plate 21, Figs. 1 and 2). A successful attempt has also been made to grow them in the plains, and there are still about a dozen and a half representative species of Conifers of fairly large size surviving in the Royal Botanic Garden and other gardens in and about Calcutta and other provinces (Plates 18 and 19). In the Lloyd Botanic Garden, Darjeeling, there are at present more than fifty species under cultivation of which only a few are natives of Sikkim (Plate 20, Fig. 1). Some of these cultivated species had been introduced early in 1860. In the Royal Botanic Garden, Peradeniya, and Hakgala Botanic Garden, Ceylon, there are up to the present time also about fifty species of Conifers under cultivation (Plate 20, Fig. 2; Pl. 22, Fig. 2; and Pl. 23, Figs. 1 and 2). Some of the species had been introduced as early as 1848. About twenty-six species have been traced growing in Burma, of which fifteen species are supposed to be indigenous and the rest are cultivated. The earliest date of introduction of Conifers in the Indian Empire is 1799, when *Podocarpus elongatus* along with a few others had been planted in the Royal Botanic Garden, Calcutta, by William Roxburgh, the then Superintendent of the Honourable East India Company's Botanic Garden, Calcutta, by which name the Royal Botanic Garden, Calcutta, was known at that time.

In spite of my recording 106 species in the present paper, I consider this as a working list of Conifers, as it is rather difficult to get specimens and authentic names from all the gardens and forest areas. It is, therefore, expected that supplementary list in future years will complete this task with the help of welcome co-operation of those interested in Conifer cultivation in this country.

The introduced and cultivated species, as far as could be ascertained at present, are about one hundred and eight in number as mentioned in the following pages. The species of Conifers noted here have been compiled from the lists kindly furnished by Forest Officers and Keepers of the different gardens of this country. But it appears, while examining specimens and the names mentioned in some of the lists forwarded, that the identifications of some of the species of Conifers growing in different gardens and elsewhere of this country require correction and some of the names adopted deserve alteration in the light of up-to-date nomenclature. Necessary emendations have, therefore, been made as far as possible in the names adopted, accepting in general the nomenclature followed in Index Kewensis and by W. Dallimore and A. B. Jackson in their splendid book entitled 'A Handbook of Coniferæ', 1931.

Apart from the twenty-three Indian wild species of Conifers representing about 21·5% of the total number recorded here, the percentages of the introduced Conifers in this country may approximately be put down as follows: Chinese and Japanese 21·5%; American 15%; European 11%; African 4·5%; Malaysian, Polynesian, and other Pacific and Atlantic Island areas 8%; Australian and New Zealand 6·5%. From these it will be seen that in this country like other parts of the Northern Hemisphere, the Chinese and Japanese specimens preponderate in the cultivation of foreign Conifers. The species from the Southern Hemisphere do not seem to do very well in regions beyond the equatorial zone. I am, therefore, led to confirm Parker's statement which runs as follows: 'With scarcely any exceptions plants from the Southern Hemisphere are more particular in their climatic requirements than those of the North. Plants from the Southern Hemisphere become naturalized in the North under rather special climatic conditions, e.g. California, Nilgiris, and the Mediterranean coast.' Lloyd Botanic Garden, Darjeeling, Peradeniya and Hakgala Gardens, Ceylon, and the Nilgiris are particularly favourable for the cultivation of Conifers. The Northern Indian Gardens, specially Dehra Dun also stocks a large number of introduced Conifers which seem doing well there. The South African, Malayan, and Polynesian species favours Nilgiris and South Burma for their accommodation when cultivated. The indigenous Conifers are confined to the West and the Eastern Himalayas, particularly in the subtemperate and temperate regions of the Central Himalaya from Kumaon, Garhwal and beyond in the West to Nepal and beyond in the East.

My thanks are due to the Superintendents and Curators of the various gardens and Forest Officers of the different districts of India, Burma, and Ceylon for their kindly taking the trouble of supplying information on Conifers growing in their localities. I am indeed grateful to Mr. T. H. Parsons,

Curator, Royal Botanic Garden, Peradeniya, for his supplying valuable data of Ceylon Conifers and a full set of photographs of the Conifers cultivated in the gardens in Ceylon. Some of the photographs of the representative species have been incorporated in this article. I am also deeply indebted to Mr. R. N. Parker, Forest Botanist, Dehra Dun, for his kindly supplying important references and valuable data, some photographs of Conifers cultivated in the arboratum at Dehra Dun and for his permitting me to publish the following extract of his letter to me, embodying his idea on the distribution of wild and introduced Conifers in general. His note might be of some use to gardeners interested in introducing foreign species of Conifers in this country.

Extract from Mr. R. N. Parker's letter dated the 25th April, 1929.

'From my own results one might conclude that certain genera such as *Juniperus*, *Cupressus*, and *Podocarpus* were formerly much more universally distributed than they are now. The members of these genera seem to be maintaining themselves in more or less isolated and specialized habitats and this seems to be a question of competition with other plants.

The Coniferæ seem to be rather sharply divided into Northern genera and Southern genera, the latter being again divided more or less according to the land masses. The Southern genera such as *Callitris*, *Araucaria*, and *Widdringtonia* do not seem to be accommodating climatically, but this is I think merely because in the Southern Hemisphere climatic conditions are much more uniform than in the Northern. With scarcely any exceptions plants from the Southern Hemisphere are more particular in their climatic requirements than those of the North. Plants from the Southern Hemisphere become naturalized in the North only under rather special climatic conditions, e.g. California, the Nilgiris, and the Mediterranean coast. When plants from Australia are taken to South Africa, the results are different. *Araucaria* and *Callitris* grow very well all over South Africa.

Some of the Northern genera of the Coniferæ such as *Abies*, *Picea*, *Larix*, etc. are temperate and they do particularly well in the Southern Hemisphere except in New Zealand, where they appear to thrive but are not really at home. A *Larix* plantation in New Zealand in winter shows some trees in fresh spring foliage others bare and others with the old leaves still on the trees.

My impression of the Coniferæ is that some genera are dying out, specially the smaller Southern genera, so are some of the Northern, such as *Cedrus*, *Cupressus*, etc. Other genera such as *Pinus*, *Abies*, and *Picea* are far from being decadent and probably occupy a bigger area now than they have ever done in the past though perhaps not so numerous in individuals.

The results of cultivation in India only are insufficient to draw conclusions or rather I should say obtain impressions and the question is complicated by possible factors such as *Mycorrhiza*.'

LIST OF CONIFERS GROWN IN THE INDIAN EMPIRE.

(1) ***Abies balsamea* Miller.** (Balsam Fir.)

This is a North American species. It was introduced in the Lloyd Botanic Garden, Darjeeling, in 1901.

(2) ***Abies Nordamanniana* Spach.** (Caucasian Fir.)

This species, originally occurring along the South and South-East shores of the Black Sea and on the Western ranges of the Caucasus Mountains, was introduced in the Lloyd Botanic Garden, Darjeeling, in 1901.

(3) ***Abies pectinata* De Candolle.** (European silver Fir.)

It is an inhabitant of the forests on the mountain ranges of Central and Southern Europe and was introduced in the Lloyd Botanic Garden, Darjeeling, in 1914.

(4) ***Abies Pindrow* Spach.** (West Himalayan Fir.)

This species, which Brandis considers as a variety of *A. Webbiana*, occurs all along the Western Himalaya from Afghanistan to Nepal but at a lower elevation (6,000 to 12,000 ft.) than that of *A. Webbiana*.

(5) ***Abies Webbiana* Lindley.** (Webb's Himalayan Fir.)

This indigenous species spreading on the mountain slopes of higher altitudes than that of *A. Pindrow* resembles with it very closely. From an elevation of (9,000 to 12,000 ft.) it is frequently found to form a more or less pure association, growing wild along the inner ranges of the Himalayas from Afghanistan to Bhutan between elevations of 8,000 to 13,000 ft. It is supposed to be wild in Northern Burmese temperate Himalayas too, and is available in the Lloyd Botanic Garden, Darjeeling and Assam.

A specimen of *Abies* sp. was received by Mr. C. E. Parkinson from Burma, which appears to be a form of *Abies Delavoyi* Franchet, a South-West Szechuen species which was evidently introduced in the North-Eastern spurs of the high ranges of the Burmese and Chinese border lands.

(6) ***Agathis australis* Salisbury** (Kauripine).

This important forest tree of the mountains of the North Island of New Zealand is said to have been imported in Ootacamond.

(7) **Agathis loranthifolia** Salisbury. (Amboyana Pitch tree.)

This dammar yielding tree 'Dammer resin' is indigenous to Malayan and Polynesian regions. It was cultivated in the Royal Botanic Garden, Calcutta, and had been introduced in the Royal Botanic Garden, Peradeniya, Ceylon, in 1881.

(8) **Agathis obtusa** Masters.

This was introduced in the Royal Botanic Garden, Peradeniya, Ceylon, in 1865. This is evidently a synonym of *Dammara obtusa*.

(9) **Agathis robusta** Masters. (Queensland Kauri.)

This species, a native of Queensland and Fraser Island, had been introduced in Peradeniya, Ceylon, in 1865. In Dehra Dun it is about 20 years old, and attempts have been made to grow it in the Agri-horticultural Gardens, Calcutta.

(10) **Araucaria Bidwillii** Hooker. (Bunya Bunya.)

This tree, wild along the coast district of Queensland, is one of those few Conifers which can be grown successfully in the tropical hills and plains too. The ripe fruits are edible. It is available in the Royal Botanic Garden, Calcutta; Lloyd Botanic Garden, Darjeeling, where it was introduced in 1880; Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon—(planted in 1848); Agri-horticultural Garden, Calcutta; Dehra Dun (introduced 40 years ago); Amritsar; Ootacamond; Victoria Garden, Bombay and Burma.

(11) **Araucaria brasiliana** Richard. (Candelabra tree.)

This species is an important timber tree of Brazil and Argentine—imported in the gardens of Ootacamond.

(12) **Araucaria Cookii** R. Brown. (Cook's Araucaria.)

This is wild in the forests of New Caledonia, Polynesia, and the Isle of Pines. The tree has not much timber value but can be grown successfully in the hills and plains of this country. It is present in the Royal Botanic Garden, Calcutta; Lloyd Botanic Garden, Darjeeling (introduced in 1924); Royal Botanic Garden, Peradeniya, Ceylon (introduced in 1865); Agri-horticultural Garden, Calcutta; Dehra Dun; Ootacamond; Udaipur; Gwalior; Victoria Garden, Bombay; Madras; Travancore and Burma.

(13) **Araucaria Cunninghamii** Aiton. (Moreton Bay Pine.)

It is a native of New South Wales, the South Coast district of Queensland and Dutch West New Guinea. It can be grown successfully in the hills and plains of India. The timber can be used for useful purposes. The tree is found in the Royal Botanic Garden, Calcutta, where dwarfed prostrate form has

also been grown successfully ; Lloyd Botanic Garden, Darjeeling (introduced in 1900) ; Royal Botanic Garden, Peradeniya, Ceylon (introduced in 1848) ; Agri-horticultural Garden, Calcutta ; North-West Frontier Province ; Lahore ; Northern India ; Ootacamond ; Victoria Garden, Bombay ; Madras ; Travancore and Burma.

(14) **Araucaria excelsa** R. Brown. (Norfolk Island Pine.)

This species is a native of Norfolk Island and had been grown successfully in the Royal Botanic Garden, Calcutta, but died a few years ago. It was introduced in 1848 in the Royal Botanic Garden, Peradeniya, and Hakgala Gardens, Ceylon, in 1848. This has been recently introduced in Dehra Dun ; Udaipur ; Victoria Garden, Bombay ; Madras and Travancore.

(15) **Araucaria imbricata** Pav. (Chile Pine.)

The tree, native of Chile, Tierra del Fuego and N. Patagonia, is popularly known as 'Monkey Puzzle'. It has timber value and its fruits are edible. This was introduced in Hakgala Garden, Ceylon, in 1886 and is reported to have been introduced in Assam.

(16) **Callitris glauca** R. Brown. (Murray River Pine.)

This species is a good Australian timber plant and has been introduced in Dehra Dun about seven years ago.

(17) **Callitris rhomboidea** R. Brown. (Illawara Mountain Pine.)

It occurs sporadically in Queensland and New South Wales near Sydney. J. S. Gamble collected specimens of this plant in 1883 from Conoor, Nilgiri District, Madras, at an altitude of 6,000 ft. It was introduced in the Royal Botanic Garden, Peradeniya, and Hakgala Garden, Ceylon, in 1886. It has been planted in the Agri-horticultural Garden, Calcutta, in Dehra Dun, and in Ootacamond of late years.

(18) **Cedrus Deodara** Loudon. (The Deodar.)

This species is a West Himalayan plant of considerable economic importance for its yielding fragrant oil and durable wood when grown under natural conditions. This was planted in 1895, in the Lloyd Botanic Garden, Darjeeling. It is met with abundantly in the North-West Frontier Province, Kashmir West and Ootacamond.

(19) **Cephalotaxus drupacea** Siebold and Zuccarini. (Cow's tail Pine.) *var. pedunculata* Miquel.

This variety, which is considered as a hybrid between *C. Fortunei* and *C. drupacea* by Prof. Henry, has recently been introduced in Dehra Dun. *C. drupacea* is a native of the forests in the mountains of Japan and Central China.

(20) *Cephalotaxus Fortunei* Hooker.

This is a Chinese species which is said to have been planted in Burma.

(21) *Cephalotaxus Griffithii* Hooker.

It occurs in Assam (Naga Hills, Mishmi, and Manipur) and Burma (Ruby mines).

(22) *Cephalotaxus Mannii* Hooker.

It is a native of the Khasia mountains, Assam, and is also frequently met with in Ruby mines, Burma.

(23) *Cryptomaria japonica* Don. (Japanese Cedar.)

This is one of the most valuable timber trees of China and Japan where it grows wild. It has been successfully cultivated in the North-West Frontier Province ; Ootacamond ; Mussourie ; Lloyd Botanic Garden (introduced in 1860), and throughout Darjeeling and Sikkim Himalaya above an elevation of 3,000 ft. This is also commonly grown in the Nilgiri Hills of Madras Presidency, Khasia and Naga Hills, Manipur in Assam ; and in Upper Burma. This was planted in the Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon, in 1894. In the Calcutta Herbarium specimens of this species from the following localities in India are available : Kumaon—7,500 ft. N. Gill, 1913 ; Mussourie, G. King ; Eastern Himalaya ; Sureil, C. C. Calder ; Kurseong, A. C. Modder, 1915 ; Mungpoo, G. King, 1881 ; Khasia Hills, 5,000 ft., G. Mann, 1878 ; Sikkim Himalaya, G. Watt, 1881 ; Thunberganum, 6,000 ft., Rev. Aug. Saulieres, 1905 ; Yunnan Expedition, Dr. T. Anderson, 1863.

(24) *Cunninghamia Sinensis* R. Brown. (Chinese Fir.)

This is a very useful tree of Central and Southern China, introduced in Dehra Dun about forty years ago.

(25) *Cupressus arizonica* Greene. (Arizona Cypress.)

This is a native of the mountains of Arizona and North Mexico. It has been introduced in Dehra Dun and the plant is of about 15 ft. in height, bearing cones ; cultivated in Gwalior gardens also.

(26) *Cupressus cashmiriana* Royle. (Kashmir Cypress.)

This is the most beautiful cypress in India considered evidently wild in Kashmir. But its occurrence only in the East Himalaya is recorded.

(27) *Cupressus funebris* Endlicher. (Chinese weeping Cypress.)

This beautiful plant, a native of Central China is successfully cultivated in the hills and plains of India, Burma, and Ceylon. This is frequently met with in the mountain ranges of

the Eastern Himalaya in Nepal, Sikkim, and Bhutan from a lower elevation to an altitude of over 8,000 ft. It has also been found growing in Maymyo forest lodge, Burma, at an elevation of 3,000 ft. Elegant specimens of this tree can be seen growing in the Royal Botanic Garden, Calcutta; Lloyd Botanic Garden, Darjeeling (introduced in 1901); Agri-horticultural Garden, Calcutta; Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon (introduced in 1903); Lahore; Gwalior, Ootacamond; North-West Frontier Province and Northern Burma.

(28) **Cupressus Goveniana** Gordon. (Californian Cypress.)

This species, an inhabitant of the Coastal mountains of California, was introduced in the Lloyd Botanic Garden, Darjeeling in 1906.

(29) **Cupressus gracilis** Hort.

This was introduced in Hakgala Garden, Ceylon, 1893.

(30) **Cupressus himalayensis** Hort.

This is reported to have been growing in Assam.

(31) **Cupressus Lawsoniana** Murray. (Lawson Cypress.)

It is a useful cypress widely distributed in the Conifer forests of the mountains of S.-W. Oregon and N.-W. California. This species has been introduced in the Lloyd Botanic Garden, Darjeeling in 1901, and in Hakgala Garden, Ceylon in 1893.

var. **Flecheri** is supposed to have been planted in Ootacamond.

(32) **Cupressus Lindleyi** Klotzsch.

This has been planted in the Lloyd Botanic Garden, Darjeeling, in 1904, and in Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon, in 1892. It is also grown in Ootacamond and North-West Frontier Province.

(33) **Cupressus lusitanica** Miller, var. **Benthami** Carriere. (Mexican Cypress.)

This is a native of Mexico. There is not much evidence to prove that this fine Conifer is indigenous to India, though it is sometimes thought to be wild in Goa and distributed to the different parts of the world by Portuguese monks. Its occurrence in the N.-W. Himalaya, as reported, indicates its early introduction in this country. It has been grown in Kablagarh Tea Estate, and at Dehra Dun by Parker in recent years.

(34) **Cupressus macrocarpa** Hartweg. (Monterey Cypress.)

This Conifer, a native of Monterey in California, was planted in the Lloyd Botanic Garden, Darjeeling, in 1904; Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon in 1880. It is under cultivation also in Ootacamond.

(35) **Cupressus obtusa** Koch. (Hinoki) *var. aurea*.

This is distributed in the Southern and Central Japan. This was planted in 1901 in the Lloyd Botanic Garden, Darjeeling. It is reported to grow in Ootacamond as well.

(36) **Cupressus pisifera** Koch. (Sawara Cypress.)

This species occurs in wild state in the hills of the Central and Southern mainland of Japan. This was introduced in 1901, in the Lloyd Botanic Garden, Darjeeling.

(37) **Cupressus sempervirens** Linnæus. (Mediterranean Cypress.)

This species is indigenous to the mountains of North Persia, Silesia, Greece, and islands of Rhodes, Crete and Cyprus. Beautiful specimens are available in the Lloyd Botanic Garden, Darjeeling, where it was introduced in 1904. In 1922, it was planted in the Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon. It is also under cultivation in the North-Western Provinces, Lahore, Gwalior, Udaipur, Central Provinces and Northern Burma. (Collected from Maymyo plateau at an elevation of 3,500 ft. by C. G. E. Dawkins.)

var. pyramidalis—was planted in the Lloyd Botanic Garden, Darjeeling in 1902. It is being tried to keep it growing in the Agri-horticultural Garden, Calcutta. *C. fastigiata* of DeCandolle is reduced by Dallimore and Jackson to *var. stricta* of *C. sempervirens*. This variety is grown in Ceylon Gardens.

(38) **Cupressus torulosa** Don.

This fine tall Conifer, an inhabitant of the outer ranges of the Western Himalaya above 4,000 ft. elevation, is under cultivation in the Royal Botanic Garden, Calcutta; Lloyd Botanic Garden, Darjeeling (introduced in 1901); Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon (introduced in 1922); North-West Frontier Province; Lahore; Ootacamond and Central Provinces; Assam; Northern Burma. Herbarium specimens have been collected from South India also at an elevation of 9,000 ft. by A. Meebold in 1909, from Nadduvaddam; from St. Mary's Kodaikanal, Madras by Rev. Aug. Sauliers in 1913; from Nilgiris in 1857 and Coonor, Nilgiri in 1898 by D. Prain.

(39) **Ginkgo Bilolba** Linnæus. (Maidenhair tree.)

Magnificent specimens of this tree which are believed to be more than 1,000 years old are found growing in and about the Buddhist temples in China, Japan, Manchuria and Corea where they are supposed to be introduced by Buddhist priests long long years ago. The predominance of the growth of this Maiden hair tree in Changhua Hsien Cheikiang Provinces of China suggests its wild growth in these parts. Rather poor representative of this species have been preserved alive in the Royal Botanic

Garden, Calcutta ; Agri-horticultural Garden, Calcutta ; and Northern India (N.-W. F. Province). A fairly large sized tree is found growing at Rambag in Amritsar (Plate 22, Fig. 1).

(40) **Juniperus bermudiana** Linnæus. (Bermuda Cedar.)

This plant is indigenous to Bermuda. Cultivated specimens of this species are available in the Agri-horticultural Garden, Calcutta ; Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon where it was introduced in 1868 ; Lahore and Ootacamond. In Dehra Dun it has been planted only six years ago, and the plant is now about 15 ft. in height and bears fruits.

(41) **Juniperus Cedrus** Webb and Berthelot. (Canary Island Juniper.)

It is found wild in Canary Islands and is growing from 1916 in the Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon.

(42) **Juniperus chinensis**, Linnæus. (Chinese Juniper.)

This species, distributed in China, Mongolia and Japan, has been growing in the Agri-horticultural Garden, Calcutta ; North-West Frontier Province, Lahore and Madras.

(43) **Juniperus communis**, Linnæus. (Common Juniper.)

This is one of the common Junipers under cultivation in the Agri-horticultural Gardens, Calcutta ; North-West Frontier Province and Madras. It is distributed in the Northern and Central Europe and in the mountains of the Coastal regions of Asia Minor, the Caucasus, Persia, Afghanistan, the Western Himalaya, the United States and Canada.

(44) **Juniperus excelsa** Bieberstein. (Grecian Juniper.)

This species is indigenous to the forests of the mountain ranges of Asia Minor where the wood is of much economic importance. It is sometimes believed that the wood of this tree is the true 'Cedar of Lebanon' of the Bible and not that of *Cedrus Libani*. This was grown in the Hakgala Garden, Ceylon, as early as 1889. Specimens of this species were collected by R. Strachey and J. E. Winterbottom at an altitude of 11,500 ft. from Milum, Kumaon ; and in 1847 J. E. Winterbottom gathered the same species in Gode in Hasora, Tibet.

(45) **Juniperus macropoda** Boissier. (Kabuli Juniper.)

This species which is confined to the N.-W. Himalaya and further West is an important plant used for various domestic purposes and sometimes burnt as incense. The wood may be tried for the manufacture of pencil. To have a popular name, I have called it Kabuli Juniper.

(46) **Juniperus Oxycedrus** Linnæus. (Sharp Cedar.)

It is wild throughout the Mediterranean region and has been planted in Dehra Dun about six years ago.

(47) **Juniperus phoenicea** Linnæus. (Phoenician Juniper.)

This species, a native of Phoenicea, was planted in Dehra Dun about three years ago.

(48) **Juniperus procera** Hochstetter. (East African Cedar.)

It is wild in the mountain forests of Kenya and Abyssinia, between 5,000 and 7,000 ft., and has recently been introduced in Dehra Dun.

(49) **Juniperus recurva** Buchanan-Hamilton.

This species is distributed all along the Eastern Himalaya between 8,000 and 13,000 ft., and abundant in Sikkim and Bhutan. This is under cultivation in the Royal Botanic Garden, Calcutta and Lloyd Botanic Garden, Darjeeling where it was planted in 1904. In Lakore and Lyallpur Dwarf bushy form is also successfully cultivated. It is also found growing in the North-West Frontier Province and North-East hills of Burma. The wood is used as incense by Buddhist priests.

(50) **Juniperus Sabina** Linnæus. (Savin.)

This is a Central and Southern European Conifer supposed to have been planted in Ootacamond under the name of *J. prostrata* which is a synonym of *J. Sabina*.

(51) **Juniperus virginiana** Linnæus. (Pencil Cedar.)

One of the most valuable Conifers whose wood is used for the manufacture of lead pencils and various other economic purposes, grows wild in the Eastern and Central United States and Eastern Canada. It was introduced in the Royal Botanic Garden, Peradeniya in 1888 and cultivated in Ootacamond and Dehra Dun where it was planted about nine years ago.

(52) **Juniperus Wallichiana** Hooker fil. (Black Juniper.)

J. D. Hooker reduces this species to *Juniperus pseudo-Sabina*. But I have here followed Dallimore and Jackson in reducing *J. pseudo-Sabina* Hooker to *J. Wallichiana* Hk. F.

An indigenous species extending throughout the West and Eastern Himalayas—was planted in 1904 in the Lloyd Botanic Garden, Darjeeling. It is abundant in North-West Frontier Province and Kashmir.

(53) **Larix europaea** De Candolle. (Common Larch.)

This European Larch is one of the most useful trees growing wild in the Alps of the Central Europe and mountains of Northern Russia and Siberia. It was planted in 1901 in the Lloyd Botanic Garden, Darjeeling.

(54) **Larix Griffithii** J. D. Hooker. (Sikkim Larch.)

This is a native of the Eastern Himalayan ranges which was planted inside the Lloyd Botanic Garden, Darjeeling, perhaps in 1911 or thereabout.

An interesting specimen of *Larix Potanini* Batalin, the 'Red Fir', was received from Mr. C. E. Parkinson as one of the Conifers growing wild in Burma. This is an instance how a Chinese species common in West Szechuen and Chino-Tibetan borderland extends into the temperate Burmese Himalayas, crossing the limit of its original range of distribution. The same remark applies to *Abies Delavayi* of Burma.

(55) **Libocedrus Chilensis** Endlicher. (Chilean Cedar.)

It is wild in the mountain ranges of the Andes in Southern Chile. It was planted in the Lloyd Botanic Garden, Darjeeling, in 1914.

(56) **Libocedrus decurrens** Torrey. (Incense Cedar.)

This species which is distributed in the mountain forests of Lower California was introduced in the Lloyd Botanic Garden, Darjeeling in 1901, and Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon, as early as 1885.

(57) **Libocedrus macrolepis** Benthams and Hooker.

This species which is sparsely distributed in the forests of the hills of Southern Yunnan, China, was introduced in the Lloyd Botanic Garden in 1910 and is also believed to have been planted in the hills of North Burma.

(58) **Picea jezoensis** Carriere. (Yezo or Hondo Spruce.)

This species to which has been reduced *Picea ajanensis*, Fischer, is wild in North-East Asia and Japan. It has been growing in the Lloyd Botanic Garden, Darjeeling since 1904.

(59) **Picea Morinda** Link. (West Himalayan Spruce.)

It is wild throughout the Himalayan ranges and is available in the Lloyd Botanic Garden, Darjeeling, and forest areas of North-Western Provinces, Kashmir West and Assam.

(60) **Pinus canariensis** C. Smith. (Canary island pine.)

It is an indigenous tree of the Canary islands. It was planted in 1890 in Hakgala Garden, and in 1902 in the Royal Botanic Garden, Peradeniya, Ceylon.

(61) **Pinus caribæa** Morelet. (The Cuban Pine.)

This species which is found wild in south-east of United States, S. Carolina, Georgia and Florida, and also in Cuba and Honduras was planted in 1927 in the Royal Botanic Garden, Peradeniya, Ceylon.

(62) ***Pinus contorta*** Douglas. (Beach Pine.) *var. Murrayana*.

A native of the mountains of the Coastland of Pacific Ocean is said to have been planted in Ootacamond.

(63) ***Pinus densiflora*** Siebold and Zuccarini. (Red Pine of Japan.)

This is a common wild species of Japan. This was planted in the Lloyd Botanic Garden, Darjeeling in 1903.

(64) ***Pinus excelsa*** Wallich. (Bhutan Pine.)

This species which is distributed throughout the Himalayan ranges is available in the Lloyd Botanic Garden, Darjeeling (where it was grown in 1910); North-West Frontier Province; Ootacamond; Assam and Burma.

(65) ***Pinus Gerardiana*** Wallich. (Gerard's Pine.)

This species which is wild in the North-West Himalayas along the borders of Kashmir and Tibet from 5,000 to 13,000 ft. bears edible fruits.

(66) ***Pinus halepensis*** Miller. (Alepo Pine).

This species is a native of the country bordering the Mediterranean Sea such as Spain, Portugal, S.-E. France, Italy, Greece, Asia Minor, Cyprus and Algeria. It has been introduced in the Agri-horticultural Garden, Calcutta and Hakgala Garden, Ceylon, where it was planted in 1890.

(67) ***Pinus Khasya*** Royle. (Khasia Pine.)

This Khasia pine, a native of Assam and Upper Burma, was planted in the Lloyd Botanic Garden, Darjeeling in 1916.

(68) ***Pinus Laricio*** Poiret. (Corsican Pine.)

This species is a common indigenous plant of Southern Europe and is said to be under cultivation in Ootacamond.

(69) ***Pinus longifolia*** Roxburgh. (Long-leaved Indian Pine.)

This is the most widely distributed Indian Conifer of the valleys and mountain ranges from near the sea level up to over 7,000 ft. elevation. It is successfully grown nearly everywhere in this country. It is available in the Royal Botanic Garden, Calcutta, where several tall trees are doing well. It also grows in the Agri-horticultural Garden, Calcutta, and was planted in 1885 in the Hakgala Garden, Ceylon. It is fairly common in the North-West Frontier Province, Kashmir, Northern India, Lahore, Ootacamond, Udaipur, Central Provinces, Bihar, Madras, Assam and Upper Burma.

(70) ***Pinus Massoniana*** Lambert. (Mason's Pine.)

This is a South-East Chinese pine imported in the Hakgala Garden, Ceylon in 1885.

(71) ***Pinus Merkusii*** Jungh and de Vriese. (Tenasserim Pine.)

This is one of the most tropical of all pines occurring in Burma, Martaban, Upper Tenasserim, Siam, Java, Cochin China, Borneo, Sumatra, and Philippine Islands. It was planted in 1927 in the Royal Botanic Garden, Peradeniya.

(72) ***Pinus Montezumæ*** Lambert. (Rough branched Mexican Pine.)

This species, a native of Mexican mountains, has been growing in the Hakgala Garden, Ceylon.

(73) ***Pinus monticola*** Don. (Western White Pine.)

This species having a long range of distribution along the Pacific Coastland of North America from South British Columbia extending to the mountains of Sierra Nevada in California reaching up to an elevation of about 10,000 ft., was introduced in the Lloyd Botanic Garden, Darjeeling in 1922.

(74) ***Pinus moraiensis*** Siebold and Zuccarini.

A specimen of this plant planted in 1911 is still growing in the Lloyd Botanic Garden, Darjeeling.

(75) ***Pinus muricata*** D. Don. (Bishop's Pine.)

This species which is confined to the coast of California, was introduced in the Hakgala Garden, Ceylon in 1891.

(76) ***Pinus parviflora*** Siebold and Zuccarini. (Japanese White Pine.)

It is one of the common trees of the forests of the mountains of Japan and Kurile Islands. This tree has been growing in the Lloyd Botanic Garden, Darjeeling since 1912.

(77) ***Pinus Patula*** Schlechtendal and Chamisso. (Spreading-leaved Pine.)

This species wild in the Central and Eastern Mountains of Mexico was planted in 1910 in the Lloyd Botanic Garden, Darjeeling.

(78) ***Pinus Pinea*** Linnæus. (Stone Pine.)

It is wild all along the Mediterranean region and was introduced in 1894 in the Hakgala Garden, Ceylon.

(79) ***Pinus radiata*** D. Don. (Monterey Pine.)

This is indigenous to Monterey country, California, and was introduced as early as 1868 in the Royal Botanic Garden, Peradeniya. It is also under cultivation in Ootacamond and Madras.

(80) ***Pinus sinensis*** Lambert. (Chinese Pine.)

This species, which is found in wild state in Central, Western China, Northern China and Corea, is available in the Royal Botanic Garden, Peradeniya, and is as old as 47 years.

(81) ***Pinus sylvestris*** Linnæus. (Scott's Pine.)

This species, one of the common pine occurring in natural state all over Europe and Western and Northern Asia, is available in the Lloyd Botanic Garden, Darjeeling, where it was imported in 1902.

(82) ***Pinus Thunbergii*** Parlatore. (Black Pine.)

This Japanese Black Pine has been grown in the Lloyd Botanic Garden, Darjeeling since 1912.

(83) ***Podocarpus elatus*** Brown. (Brown's Pine.)

This species, a native of New South Wales and South Queensland, was introduced in the Royal Botanic Garden, Peradeniya, as early as 1873.

(84) ***Podocarpus elongatus*** L'Héritier.

It is a native of the Western parts of South Africa which was planted 40 years ago in Dehra Dun. It has also been introduced in the Agri-horticultural Garden, Calcutta and Ootacamond.

(85) ***Podocarpus falcatus*** R. Brown. (Oteniqua Yellow Wood.)

This species, a native of Cape Colony, Natal, and the Transvaal has been grown in Dehra Dun.

(86) ***Podocarpus gracilior*** Pilger. (Musengera.)

It is distributed in Abyssinia, Uganda and Kenya and has been growing in the Royal Botanic Garden, Calcutta and Peradeniya, Ceylon since 1927. It has also been introduced in Dehra Dun.

(87) ***Podocarpus imbricatus*** Blume.

To this species has been reduced *Podocarpus cupressina*, R. Brown, which is indigenous to Burma, North British Borneo, Java, and Philippine Islands. It is frequently met with in Upper Burma and was introduced in 1880 in the Hakgala Garden, Ceylon.

(88) ***Podocarpus latifolius*** R. Brown. (Real Yellow Wood.)

It grows wild in South Africa and was introduced in 1900 in the Royal Botanic Garden, Peradeniya, Ceylon; Assam; Tinnevalley District, Madras and Upper Burma.

(89) ***Podocarpus littoralis*** Hort.

It was introduced in 1921 in the Royal Botanic Garden, Peradeniya, Ceylon.

(90) **Podocarpus macrophyllus** D. Don.

This species, wild in China and Japan and sometimes used as hedge plant there, was introduced in 1891 in the Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon. This plant is sometimes used for hedges and stands pruning.

var. Maki.

This variety has been under cultivation in the Royal Botanic Garden, Calcutta; Agri-horticultural Garden, Calcutta; Lahore; Ootacamond; and the Royal Botanic Garden, Peradeniya, Ceylon where it was introduced as early as 1808.

var. albo-variegatus.

This variety was planted in 1921 in the Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon. The *var. variegata* of the Ceylon gardens evidently refers to the above variety characterised by silvery variegated leaves.

(91) **Podocarpus Nagi** Makino (*Nageia*).

This tree, wild in Japan, China and Formosa, is much used for dwarfing purposes as a pot plant, and has recently been introduced in the Agri-horticultural Garden, Calcutta.

(92) **Podocarpus neriifolius** D. Don. (Thitmin.)

This is the most common wild *Podocarpus* of the Himalayas extending down to Borneo, Java, and the Andaman Islands. Almost full sized plant is found in the Royal Botanic Garden, Calcutta, Lower Burma and Assam. This has been introduced fifteen years ago in Dehra Dun. It has got some timber value.

(93) **Sequoia sempervirens** Endlicher. (Californian Red wood).

This tree which sometimes attains a height of about 340 ft. in South California is perhaps the tallest tree in the world. A specimen has been growing since 1887 in the Hakgala Garden, Ceylon. The wood is used for various useful purposes.

(94) **Taxodium distichum** Richards. (Deciduous Cypress.)

This is one of the most graceful conifers occurring in wild state from Florida to Mexico. It grows well in the plains and beautiful specimens can be seen in the Royal Botanic Garden, Calcutta, Lloyd Botanic Garden, Darjeeling where it was planted in 1895. It is also found growing in Ootacamond and Lahore.

var. mucronatum. (Mexican Cypress.)

This variety which is confined to Mexico and sometimes in some parts forms a more or less pure association is available in the Royal Botanic Garden, Calcutta; Lloyd Botanic Garden, Darjeeling (where it was introduced in 1901); Agri-horticultural Garden, Calcutta and it has recently been planted in Dehra Dun.

(95) ***Taxus baccata*** Linnæus. (Common Yew.)

This species which has wide range of distribution, occurring wild in Europe, North Persia and Algeria flourishes in natural state in the Himalayan ranges from Afghanistan to Bhutan. It is available in the Lloyd Botanic Garden, Darjeeling; North-West Frontier Province; Kashmir; Ootacamond; Assam and is also said to occur in Burma.

(96) ***Tetraclinis articulata*** Masters. (Alerce).

This species, indigenous to Algeria Mogador, Morocco, and Malta, has recently been introduced in Dehra Dun, North-West Frontier Province, and the Punjab. *Callitris quadrivalvis* Vent is a synonym of *T. articulata* Masters. A fine specimen of this species is found growing in the Punjab University Botanic Garden.

(97) ***Thuja dolabrata*** Linnæus. (Hiba.)

One of the important Japanese forest trees. It was introduced in 1885 in the Lloyd Botanic Garden, Darjeeling. It is under cultivation in Ootacamond too.

(98) ***Thuja japonica*** Maximowicz. (Japanese Arbor-vitæ.)

This species, wild in the hills of Central Japan, was planted in 1905, in the Lloyd Botanic Garden, Darjeeling.

(99) ***Thuja occidentalis*** Linnæus. (American Arbor-vitæ.)

It is a native of the Eastern, North America and has been grown in Ootacamond, Gwalior, and North Burma. It has been growing in the Lloyd Botanic Garden, since 1902 and in the Hakgala Garden since 1885.

(100) ***Thuja orientalis*** Linnæus. (Chinese Arbor-vitæ.)

This is the most widely cultivated species of Conifers growing everywhere but occurring wild in Northern and Western China.

It is grown as an ornamental plant all over India. In Bengal it is available in the Agri-horticultural Garden, Calcutta and in the Royal Botanic Garden, Calcutta, where it must have been introduced during East India Company's time, very likely by Wallich in 1812, and was perhaps subsequently distributed elsewhere. It is at present frequently met with in almost all the gardens throughout India and Burma. It was grown in the Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon from 1885. It occurs also in the Lloyd Botanic Garden, Darjeeling; Lahore; Gwalior and various parts of this country. J. S. Gamble collected specimens of this species from Darjeeling in 1897. In 1857, this plant was found in the Nilgiri hills in Southern India.

var. aurea.

This variety has been growing in the Lloyd Botanic Garden, Darjeeling since 1904 and has recently been planted in Lahore.

var. compacta.

It was introduced in the Lloyd Botanic Garden, Darjeeling in 1901 and has recently been planted in the Victoria Garden, Bombay.

var. elongatissima.

This was planted in the Lloyd Botanic Garden, Darjeeling in 1913.

var. semperaurescens.

It was introduced as early as 1885 in the Royal Botanic Garden, Peradeniya and Hakgala Garden, Ceylon.

var. aurea-variegata.

This was planted in 1890, in the Lloyd Botanic Garden, Darjeeling.

(101) Thuja plicata D. Don. (Western Arbor-vitæ.)

A valuable timber tree of Western, North America, extending from sea level to the elevation of 6,000 ft. This specimen was introduced in the Lloyd Botanic Garden, Darjeeling during 1900-1901 ; Gwalior.

(102) Tsuga Brunoniana Carriere. (Himalayan Hemlock.)

An indigenous plant extending throughout the Eastern and Western Himalayan ranges is available in the Lloyd Botanic Garden, Darjeeling and has been planted in Assam too.

(103) Tsuga yunnanensis, Masters. (Yunnan Hemlock.)

This species, wild in Yunnan and West Szechuen, is grown in Northern Burma.

(104) Widdringtonia cupressoides Endlicher. (Sapree wood.)

This shrub which is confined to the Table Mountain range has recently been planted in Dehra Dun.

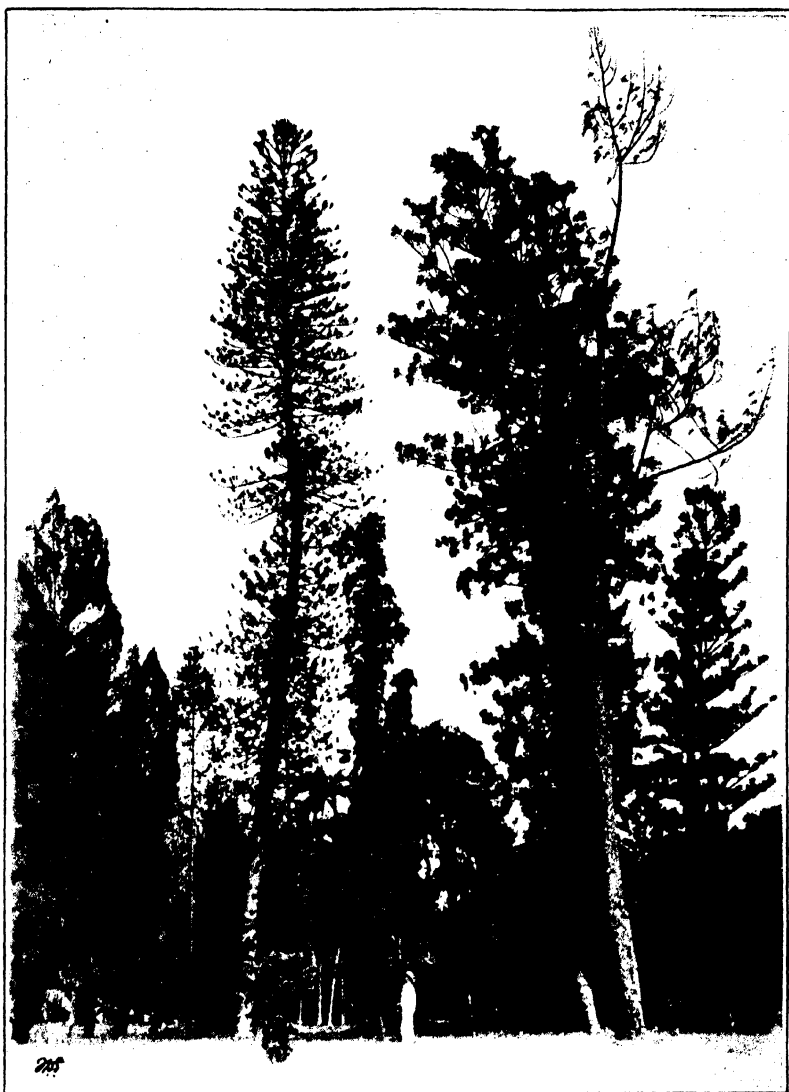
(105) Widdringtonia juniperoides Endlicher. (Clanwilliam Cedar.)

This tree is a native of the forest area of Cedarberg Mountains and has been introduced in Dehra Dun.

(106) Widdringtonia Whytei Rendle. (Milanji Cedar.)

This cedar of Milanji Mountains has recently been planted in Dehra Dun and Ootacamond.

*Herbarium,
Royal Botanic Garden,
Calcutta, the 15th May, 1933.*



A group of Conifers in the Royal Botanic Garden, Calcutta. (Left to right)—in the foreground—*Araucaria excelsa* (about 3 years old). In the background—*Juniperus chinensis* with mostly needle leaves and scale leaves mixed up at the base. *Juniperus chinensis* with needle leaves at the base but mostly all scale leaves above, due perhaps to its being in more shady part. *Agathis loranthifolia*; *Cupressus funebris*; *Araucaria Cunninghamii*; *Podocarpus neriifolia*; *Pinus longifolia*; *Araucaria excelsa*. *Juniperus chinensis*—(all needle leaves).



A group of Conifers in the Royal Botanic Garden, Calcutta. In the foreground—*Pinus longifolia*. In the background—*Araucaria Cunninghamii* and *Araucaria Bidwillii*.



FIG. 1. Conifers under cultivation in the Lloyd Botanic Garden, Darjeeling. (Left to right)—(1) *Thuja orientalis*, (2) *Taxus baccata*, (3) *Picea Morinda*, (4) *Larix (Griffithii)*, (5) *Cupressus Goveniana*, (6) *Cedrus Deodara*, (7) *Cryptomeria japonica*, (8) *Juniperus recurva*, (9) *Cupressus lusitanica* var. *Benthani*, (10) *Abies balsamea*, (11) *Cupressus macrocarpa*.



FIG. 2. Another view of the group of Conifers growing in the Royal Botanic Garden, Peradeniya, Ceylon. (Left to right)—*Cupressus macrocarpa*, (11 years old); *Araucaria Cookii*, (11 years old); *Cupressus macrocarpa*, (11 years old); *Cupressus Lindleyii*, (11 years old).



FIG. 1. Conifers under cultivation in the arboretum, New Forest, Dehra Dun. (Left) *Podocarpus gracilior*, (8 years old, 13 ft. in height); (Right) *Tetraclinis articulata*, (5 years old, 9 ft. in height).

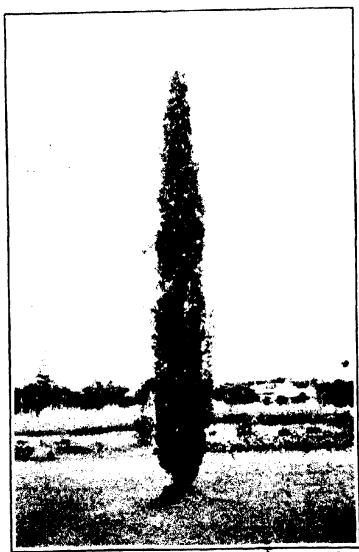


FIG. 2. Conifers under cultivation in the arboretum, New Forest, Dehra Dun. (Left) *Juniperus procera*, (8 years old, 16 ft. in height); (Right) *Callitris glauca*, (7 years old, 25 ft. in height).

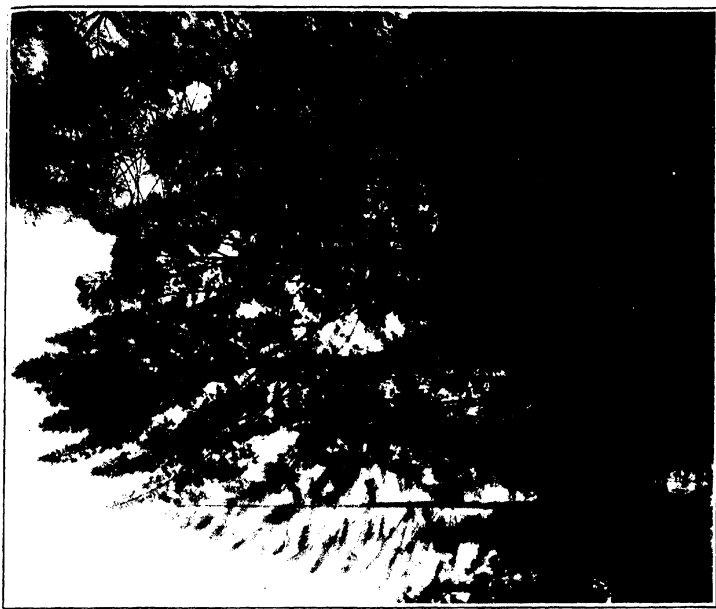


FIG. 2. A group of Conifers in the Royal Botanic Garden, Peradeniya, Ceylon. (Left to right)—*Araucaria Cunninghamii*, (11 years old); *Agathis robusta*, (25 years old); *Araucaria Bidwillii*, (25 years old); *Juniperus procera*, (9 years old); *Podocarpus littoralis*, (10 years old).



FIG. 1. The tallest cultivated Indian specimen of *Ginkgo biloba* at Rambag, Amritsar. The two men are standing near the tree. In the background on the left there is a large tree of *Thuja occidentalis*.



FIG. 1. Conifers under cultivation in the Royal Botanic Garden, Peradeniya, Ceylon. *Pinus Merkusii*. (4 years old).



FIG. 2. A group of Conifers growing in the Royal Botanic Garden, Peradeniya, Ceylon. (Left to right)—*Araucaria Cunninghamii*, (11 years old); *Cupressus sempervirens* var. *stricta*; *Thuja orientalis*, (11 years old); *Juniperus procera*, (11 years old); *Cupressus Lindleyii*, (11 years old); *Agathis robusta*.

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From the Journal of the Royal Asiatic Society of Bengal.
Letters.

Vol. II, 1936, No. 3.

Issued 7th February, 1938.

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NUMISMATIC SUPPLEMENT No. XLVI

ARTICLES 328-340

*Continued from 'Journal and Proceedings', Vol. XXX,
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328. SOME COINS OF THE NAPKI MALKA CLASS RESTRUCK BY SHAHI-TIGIN.

Coins of Shahi-tigin are well-known both for their extraordinary trilingual legends and for their unusual design. Among the more readily available illustrations I would cite Cunningham, 'Coins of the Later Indo-Scythians', Pl. X, No. 9, and Vincent Smith, 'Indian Museum Catalogue, Vol. I, Pl. XXV, 1. The obverse portrait is a three-quarter face,—an unusual representation, and the reverse design is a bust of a male deity, possibly the sun-god, to front with flames springing from behind the head and rising to a point.

The findspots of the Shahi-tigin Coins have been carefully recorded by Cunningham (in *Num. Chron.*, 1893, page 268) as follows :—

'Two specimens were obtained by Ventura in the Manikyala Stupa. Dr. Lord got forty to the north of the Caucasus (i.e. Hindukush). I have received some twenty or thirty from Kabul, and I am aware that a few have been found in Sindh and Kacch.'

The latter, presumably, are strays—perhaps brought down through Kandahar, Quetta and Shikarpur, the well-known Sindh entrepot for Central Asian trade—and the seat of Shahi-tigin's power should, therefore, be searched for in Northern Afghanistan and not in Multan as erroneously supposed by Cunningham. Dr. Heinrich Junker has made a recent study of the coin legends on these and similar coins, in 'Die Hephthalitischen Münzschriften' (Berlin, 1931), and has found an interesting series of place-names. Those on the coins showing the sun-god are specially important :—

Dāwar (Zamindāwar) on Cunn. X, 9 and 10

Rōšnān (?Rudbar on Helmand) on X, 9 and 11

Zābulistān on X, 9 and 10

Farzān (?Idrisī Firoz and on Helmand) on X, 10

and Sakāwand (between Ghazni and Kābul) on X, 11.

This is sufficient indication for the geographical position of the shrine of the sun-god but the findspots of the coins of Shahi-

tigin suggest a more Northerly position for the centre of his power.

The coins showing this full-face bust of the sun-god can be dated with great accuracy, as two of these issues were struck by Khusrau II of Persia and dated in years 26 and 37 of his reign, corresponding to 616 and 627 A.D.

We have fortunately an invaluable document describing Afghanistan at this period in the *Life and Travels of Yuan Chwang*, the Chinese Buddhist pilgrim whose travels lasted from 629 to 645 A.D. and who passed twice through Afghanistan. Reference to his writings makes it fairly certain that Shahi-tigin was the King of Kapisi, an area north-east of Kabul, and that the sun-god was 'Shuna' or 'Ch'una' whose shrine was on a mountain in the south of the Tsao-ku-ta country, roughly in the neighbourhood of Zamindāwar and Kandahar.

Watters, in his edition of *Yuan Chwang*, states :—

'Our pilgrim reports this god as being held in great awe, as having rich offerings presented to him and prayers made to him, not only by the inhabitants of Tsao-kuta, but also by votaries of all classes from other countries.'

The great diversity of style and script on coins bearing this bust indicate that the deity portrayed was of more than local or provincial importance, and, as Cunningham's suggestion that it was the sun-god of Multan has been discredited, I have no hesitation in putting forward this alternative proposal. He was, apparently, a Turkish god whose cult was imported from Central Asia by the Western Turks who ruled in various portions of Afghanistan from 567 A.D. to 658 A.D. when they were absorbed in the Chinese Empire. Watters states that Shuna was a sun-god and the bust on the coins is unmistakably that of a solar diety. Yuan Chwang tells us a curious story of how, when this god was travelling from Central Asia to Tsao-ku-ta, he wished to halt in the kingdom of Kapisi, but, the guardian spirit of Mount Aruna proved inhospitable and was punished by having to do annual obeisance to Shuna in his new home (see Watters, pp. 126-7).

We, therefore, find in this legend a direct connection between Shuna and the kingdom of Kapisi, which, considered in conjunction with the coin findspots, make it probable that Shahi-tigin was ruler of Kapisi.

This probability is strengthened by the fact that General Ventura obtained two of these coins from the relic chamber of Manikyāla stupa near Rawalpindi. The king of Kapisi at the time of Yuan Chwang's travels was a great conqueror, but had recently lost Taxila to the Kingdom of Kashmir. The coins must have been deposited at Manikyāla before this change of rule.

Further statements by Yuan Chwang show that this king was ruling over the following areas at the time of his visit :—

- (1) Kapisi—which according to Watters and Cunningham must have then included the whole of Kafiristan as well as the two large valleys of Ghorband and Panjshir.
- (2) Nagar—the district round Jalālabad.
- (3) Gandhāra—west of the Indus, corresponding to Peshawar Dist.
- (4) Varna—which Sir Aurel Stein has proved to be Bannu Dist., as previously conjectured by Cunningham.
- (5) It appears from Yuan Chwang's 'Life' that Tsau-kuta may also have been included in his empire, but this is by no means certain.

Having fixed Shahi-tigīn both in time and place I am now able to publish three countermarked coins which have not been previously ascribed to him.

These coins were struck, prior to the period of their countermarking, by one of Napki Malik's later successors who probably lived in the Kabul area, or perhaps further north as, prior to the invasions of the Western Turks, the Greek Kushan script which is found on these coins appears to have been almost totally confined to the countries north of the Hindukush.

The legend on these coins has been read by both Herzfeld and Junker as 'Sri Shahi'. Turning now to the countermarks, two of my coins have a countermark containing two Brahmi characters and are, therefore, duplicates of Cunningham, 'Later Indo-Scythians', plate IX, 19. Cunningham read these as 'Tiri', but a closer study shows them to be 'Tigi'. I am indebted to this discovery to Mr. Majumdar, who at once agreed with my suggestion that this was short for 'Tigīn', a common title for a chieftain among the Turks. Cunningham mentions having 'three similar coins with an insect as countermark' and these two show this as an additional mark. My third has it as a sole countermark. On a close study, however, I cannot agree with Cunningham in calling it an insect. It is a facing bust of the sun-god Shuna !

We have now two clues pointing to the Turkish origin of these countermarks—the bust of Shuna and the title Tigīn. Further, the use of Greek-Kushan legend on the coins before this being countermarked points to the neighbourhood of Kapisi as their provenance. We should, therefore, compare the coins with those of Shahi-tigīn, the Turkish ruler of Kapisi. Both have the Greek-Kushan legend 'Sri Shahi' in front of the face on the obverse (perhaps Shahi-tigīn copied this from the late Napki-Malka coins), both have the bust of the sun-god, and

while one class has 'Shahi-tigīn' in the long Brahmi legend, the other contains 'Tigīn' as a countermark.

Finally, and for this finishing touch to the argument I am indebted to Mr. Dikshit, two minute Brahmi letters, which appear in the same oval countermark as the bust of the sun-god, can only be read as 'Shahi'. This, with the 'Tigīn' countermark completes the name 'Shahi-tigīn' on the countermarked coins.

Baladhuri tells us a curious story in his description of the campaign of A.H. 33 (=653 A.D.), in which Ibn-Samurah, governor of Sijistan, over-ran Zamindāwar :—

'When he got as far as the provinces of ad-Dawar he surrounded the enemy in the mountain of Az-Zur. They soon surrendered to him Ibn-Samurah went into the temple of the Zur, an idol of gold with two rubies for eyes, and cut off the hand and took out the rubies. Then he said to the Satrap, "Keep the gold and the gems. I only wanted to show you that it had no power to harm or help."'

It appears that this idol is the Shuna of Yuan Chwang and the sun-god of our coins. Shuna lived on a mountain in the south of the Tsao-ku-ta country (which included the Helmand Valley and the country from Ghazni to Kandahār). The idol mutilated by Ibn-Samurah, was on a mountain in the neighbourhood of Zamindāwar, and the rubies and gold of the idol indicate by their brightness that his may have been a solar cult.

Though the Western Turks first appeared on the Iranian borderlands between 563 and 567 A.D. they did not advance to Herāt till 588 A.D. and a general of Khusrāu II was able to force his way as far as Balkh as late as 597 A.D. It appears therefore that they did not establish themselves round Kābul, Ghazni and Kandahār; and there is nothing improbable in the theory that Shahi-tigīn was among the first to rule in this area and that it was he who imported the god Shuna and established him in Zamindāwar.

M. F. C. MARTIN.

329. THE COINS OF RAJGIR.

In this paper my object is to illustrate some cast and single-die copper coins originally hailing from Rajgir, and now in two private collections. Mr. Prithwi Singh Nahar the well-known coin collector of Calcutta owns Nos. 2, 4, 5, 6, 9 and 11 while the rest belong to me. I am grateful to Mr. Nahar for placing his coins at my disposal. Cast coins of the type of No. 1 have long been known and were first described by Cunningham. They are also found at other sites, but as they are found in particularly large numbers at Rajgir I thought it best to include them under 'THE COINS OF RAJGIR'. Early cast and die-struck coins were widely prevalent throughout North India and had many features in common. The so-called Taxilā and Ujjain symbols were not confined to coins originating from these cities, but were well recognized symbols throughout India.

In spite of the existence of this community of symbols, each provincial currency in ancient India had its own characteristics and local peculiarities noticeable in the fabric of the coins, as also in the grouping of the symbols. The symbols play a very important role in the assignment and interpretation of Ancient Indian Coins, including punchmarked as well as cast and die-struck coins. These symbols have from the very beginning exercised eminent numismatists such as Cunningham, Theobold, Rapson, and V. A. Smith, who have arrived at different conclusions as to their interpretations. Here I wish to add a few remarks about the so-called 'sq. cross' and the 'triangular-headed' symbol.

The square cross is almost invariably present in all the cast coins from Rajgir and has been explained by Theobold as 'a variant of Swastikā'. Apart from its very close association with the coins of Rajgir, the symbol appears along with a three-arched *chaitya* in a coin from Taxilā.¹ In a two-*pana* piece from Taxilā it occupies the whole of the reverse.² Outside India a symbol similar to this has been found in an ancient tomb at Mycenæ.³ It is very difficult to say what this symbol stands for. Theobold's Nos. 225 and 269 appear to have a very close connection.⁴ Theobold would interpret No. 225 as a cross having within it a 'śaivite lotus'. The symbol within the cross appears to be a lotus but the compound symbol can be very appropriately explained as a tank or step well with four approaches and a lotus within.

¹ C.A.I. Pl. II, 16.

² J.A.S.B., 1890, p. 260.

³ C.A.I. Pl. II, 15.

⁴ *Ibid.*, Pl. XI.

The so-called 'triangular-headed' symbol is yet another mystery. According to Theobald, in whose article it is numbered 119, it is 'a raised receptacle of food for birds'. This symbol occurs singly on punchmarked, cast and die-struck coins. Sometimes it is also represented in a railing.¹ The antiquity of this symbol is proved from the fact that a gold leaf representation of it has been found among other relics from the famous Piprahwa vase.² It also appears to be a Jaina symbol, appearing in an Āyagapata of the 1st century A.D. from Mathurā.³ A marked similarity exists between this symbol and another which appears on some coins of a king Suyamita of the so-called Pāñcāl a Mitra Dynasty, where a rayed sun surmounts this symbol making it as its stand.⁴ That these two symbols represent one common object and serve a common purpose by holding a swastikā over them, is proved by the substitution of one for the other in some of the copper coins of the Kuṇindas. In the light of this evidence it will not be inadequate to interpret it as an altar. Curiously enough, while describing the coins of Suyamita, Rivett Carnac termed it to be a 'triangular-shaped altar'.⁵

A group of common symbols arranged in a particular order distinguish the cast coins from Rajgir. Generally the common symbols are, a tree in railing,⁶ a three arched chaitya with a crescent, a square cross, a swastikā, a taurine, a triangular-headed symbol and an elephant. One or two of the above mentioned symbols are sometimes replaced by others and sometimes also the arrangement is different. The chief feature of these coins is the presence of an animal on one side and a tree in railing on the other (Pl. No. 1). The animal is generally an elephant, but a bull or a lion also occurs in rare instances. In some coins of this series (e.g. No. 2) animals, different or identical appear on both the sides.

No. 3 is another interesting coin widely differing from the ordinary type of cast coins from Rajgir. It has on one side a railing, enclosing a tree, with prongshaped branches in two tiers, depicted just opposite to the manner in which they are found on the coins of the Kuṇindas. The tree here may be compared with that on some coins of the Saka satraps of Mathurā.⁷ There is to the left of the tree, a wheel on a stand made up of two inclined spokes and an arc. Similar wheels on stands are

¹ J.R.A.S., 1900, p. 101.

² J.R.A.S., 1898, p. 596.

³ Coomaraswamy—History of Indian and Indonesian Art, Pl. XIX,

71.

⁴ J.A.S.B., 1880, p. 89, Pl. IX, 24.

⁵ *Ibid.*

⁶ Two distinct varieties of tree are found, one with three branches and another having more than three branches with foliage.

⁷ C.A.I., Pl. VIII, Nos. 16, 17.

to be found in the famous reliefs of Bhārhut and Mathurā.¹ The wheel has a very close resemblance with similar wheels in a coin from Kosām² and in the only known coin of the Kulutas.³ To the right of the tree, appear traces of another indistinct symbol. On the reverse occurs the 'Ujjain symbol' and an elephant standing to left with its trunk and tusk so clearly visible. The elephant here is much superior in execution to the representation of the animal elsewhere on the cast coins. As regards the so-called 'Ujjain symbol' Rapson agreed with Cunningham that this symbol occurs 'on nearly all the coins of ancient Malwa, wherever found—at Eran, Besnagar and Ujjain' and preferred to term it 'Mālava symbol'.⁴ But this symbol also appears on several ancient Indian coins from places far beyond the limits of ancient Mālava, as for example on several coins of the Hindu satraps of Mathurā,⁵ on coins of Kosām, and on the present coin from Rajgir.

The rectangular single-die coins from Rajgir which are comparatively rare conform to some definite types rather than exhibit a number of symbols regularly arranged as on the cast coins. Their style of execution is superior to that of the cast coins (cf. Nos. 4, 5 and 10).

No. 4 is a beautiful coin showing an ornamental border made up of fine leaves and a shallow incuse, two seated figures within. The one to the right (apparently a monkey) with its tail coiled up at the back extends the right hand to receive some object from the other figure to its left, which is apparently seated on a semi-circular stool with the legs hanging down. There are distinct traces of a head dress which may indicate the superiority of the figure to the left. The object which is being delivered closely resembles a lotus with a long stalk. The significance of the whole of this unique scene is unknown but it may be some well-known story from the Rāmāyana.

Another beautiful and unique coin is No. 5. Within an ornamental border made up of fine leaves and in a shallow incuse stands a symbol composed of four crescents round a central boss. A variant of this symbol is found in the famous reliefs of Bhārhut and another is the so-called 'Taxilā symbol'. Mr. V. A. Smith would describe it as 'solar symbol composed of crescents applied to a central boss'.⁶ This symbol is numbered 161 in Theobald's article⁷ where it has been described as 'four taurines united together in cunifform fashion'.

No. 6 has a border of ten taurines arranged along the edges with a single sickle-shaped symbol within, the significance of which is unknown.

¹ Coomaraswamy—History of Indian and Indonesian Art, Pl. XIX, 71.

² I.M.C., Pl. XX, 5.

⁴ J.R.A.S., 1900, p. 198.

⁶ I.M.C., p. 157n.

³ C.A.I., Pl. IV, 14.

⁵ I.H.Q., Vol. X, No. 4, p. 725.

⁷ J.A.S.B., 1890, Pl. X.

The next interesting group Nos. 7 and 8 show a three arched chaitya with a crescent and a taurine by the side. These symbols appear to have been struck on a blank field by means of a single-die containing both the symbols. The chief point of interest in respect of these coins are in the unusual way in which the symbols have been depicted.

No. 9 shows a beautiful representation of the *pipal* (*bodhi*) tree within a latticed railing on the upper edge of which are seen a bud (?) and *chaatra*. On either side of the tree is a *crux ansata* and an inverted taurine.

No. 10 shows scales hanging from a taurine by means of a cord and a vertical bar standing to the left. The whole device is within a shallow incuse and has an ornamental border.

No. 11 is exactly similar but thinner and the vertical bar stands to the right instead of left of the scales. The association of the bar with the scale may perhaps be taken to represent a sceptre, but the scales as symbolising royal justice are not met with in ancient India. Mr. Jayaswal would like to explain the bar as Brāhmi 'ra'.

Most of the Rajgir coins do not conform to the indigenous weight system of India, unlike the single die coins from Taxilā which nearly always conform to that system. Finding that the Taxilā coins constantly maintain a weight of 140-144 grains Cunningham designated them as *panas*. Only three of the Rajgir coins agree to the indigenous standard in weight; viz. Nos. 1, 7 and 9 weighing respectively 68·8 grains, 34·5 grains and 14·6 grains. They may therefore be called *ardhapana*, *Kākinī*, and *ardha-Kākinī* respectively.

As regards the age, the cast coins of India may be assigned to the 2nd and 1st centuries B.C. and 1st century A.D. Some of them have been found from the lowest stratum in course of excavation on the site of the New Rajagriha along with some stone fragments containing Brāhmi inscriptions assignable to the pre-Christian epoch.² According to Cunningham native copper coins were contemporary with the similar shaped copper coins of Pantaleon and Agathokles.³ He has been corroborated by the discovery at Taxilā of a hoard of copper coins which contained 9 pieces of Pantaleon, 15 of Agathokles, 84 single-die pieces, and 27 double-die coins,⁴ which prove that these single-die and double-die coins were together in circulation along with the coins of Pantaleon and Agathokles. That these single-die coins are older than the double-die issues is proved by the fact that they conform to the indigenous weight system of India whereas the weights of the double-die coins are influenced by the Greek standard. If Pantaleon and Agathokles were ruling in Gāndhāra

¹ J.B.O.R.S., June, 1936.

² A.S.I.A.R., Vol. V—Explorations at Rajgir.

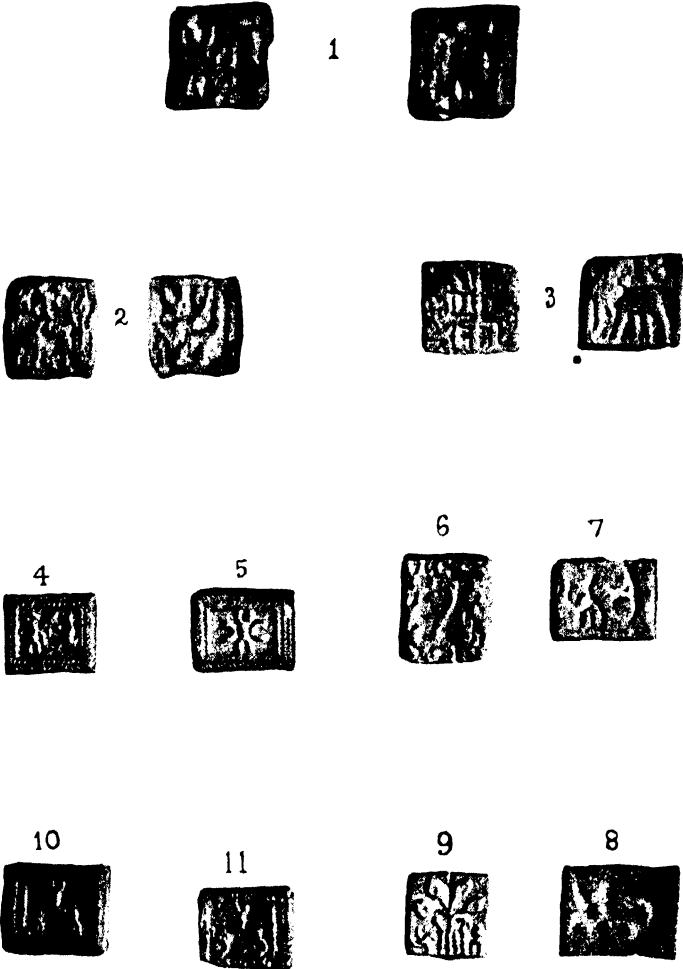
³ C.A.I., p. 53.

⁴ A.S.I.A.R., Vol. XIV.

in cir. 200 B.C., the single-die coins must have been current considerably before that time. It is not improbable, that they were in circulation along with the silver punchmarked coins, a view which is supported by Cunningham, when he says, 'from the scarcity of copper punchmarked coins, I am led to believe that they (the cast) must have been current together with silver coins.¹ The cast coins must have been driven out of circulation when they were replaced by the large number of Kushan copper coins during the 2nd century A.D.

S. SINGH ROY.

C.A.I., pp. 59-60.



THE COINS OF RAJGIR.

330. TWO NEW ANDHRA COINS.

The two coins described in this note were obtained from a shroff at Karad in Satara district, and are said to have been recovered from the bed of the Krishna at Karad, where people usually search for coins and ornaments after the annual floods have receded. The provenance of the coins being Karad, they may be taken to have been current in Satara district.

(1) Coin of Mūla Sa(dakani).



Obv.



Rev.

Metal, lead; size roughly circular, .8" ; weight 142.7 gr.

Obv. Maned lion to the l. ; circular legend with considerable space between the consecutive letters, *Mūla Sa (dakni)sa*. It commences near the front feet of the lion.

Rev. Above to the r. tree in railing ; to the l. *Chaitya* with two small arches, surmounted by a larger arch, each having a dot within. Below : Wavy line (signifying a river ?) between straight lines.

From the metal and type it is clear that the coin belongs to some ruler (or feudatory) of the Āndhra dynasty. Its precise attribution is however difficult. The legend is fragmentary and the type does not agree entirely with any one known so far.

The obverse type, lion to the right, is so far known to appear on the Āndhradeśa variety of the Sātavāhana coins (see Rapson, *A catalogue of Indian coins, Andhras, etc.*, pp. lxxviii-lxxix) ; these, however, have no *Chaitya* and tree in railing on the reverse. The reverse of the present coin bears some affinity with the lead Āndhra coins found at Kolhapur, on which we have a *Chaitya* and a tree in railing standing side by side, with this difference that the *Chaitya* has only four tiers instead of two, as in the Karad specimen.

Other analogous coins are the issues of Chutukalānanda and Muḷānanda found in North Canara district (Rapson, *Ibid.*, pp. 59-60, Pl. VIII, G.P. 2 to G.P. 4) on which the arched *Chaitya* and the tree in railing are found, but on different sides and not on the same as on the present coin.

The closest resemblance to the present coin is found on the issues of Sadakana Kaḷalāya Mahārathi from Chitaldurg district (*ibid.*, pp. 57-8 and pl. VIII, Nos. 233-4). In both cases the reverse side has a *Chaitya* and tree in railing side by side, the former consisting of two small arches surmounted by a bigger one. But on the coins of Sadakana Kaḷalāya there is a crescent on the *Chaitya* and there is no common platform for the *Chaitya* and the tree. On the obverse of the coins of Kaḷalāya Sadakana there is a bull (instead of a lion) but the style of the circular legend around the animal is identical.

To judge from the spacing of the preserved letters on our coin, its legend could have consisted only of seven or eight letters. The extant letters are *Mula Sa . . . sa*. After the first *sa* there is a remnant of *da*. I would therefore complete the legend by inserting *dekaṇi*, the whole legend thus reading *Mula Sa(dakaṇi)sa*, ' (The coin) of Mula Sadakaṇi '.

It is difficult to identify this Mula Sadakaṇi with any known ruler or feudatory of the Āndhra dynasty. The name of the third ruler of the Āndhra dynasty is spelt as Mallakaṇi in the *Matsya Purāṇa*, while all other Purāṇas spell it as Śātakarṇi. If the medial *u* mark of *Mu* were not clear, it would have been possible to attribute our present coin to the third ruler of the Āndhra dynasty and the palæography of the coin would have been in favour of this view. It is also proved that Mahārāshṭra had passed into the hands of the Āndhras earlier than the time of this king, and a coin of his could well be found in Satara district. But the medial *u* mark of *Mu* is quite clear on the coin, and the majority of Purāṇas spell the name of the third king as Śātakarṇi, and not as Mallakaṇi. We cannot therefore support this identification.

The next alternative is to identify Mula Sadakaṇi of this coin with Muḷānanda of the Chuṭu family (Rapson, *ibid.*, p. 60, pl. VIII, 236 and G.P. 4). The names of the rulers of the Chuṭu family, however, ended in Ānanda and it is absolutely clear from the extant portion of the legend on the present coin that king Mula did not add that affix to his name. The second letter on the present coin is spelt as *la* and not as *ḷa* as on the coins of Muḷānanda. The palæography of the present coin indicates that it belongs to an earlier period and the resemblance between their types too is not very close as shown already.

The closest resemblance of the present coin is, as shown above, with the coins of Sadakana Kaḷalāya Mahārathi found in Chitaldurg district. Rapson has suggested with some hesitation that

Kaḷalāya Sadakaṇa of the coins was probably the father of Queen Nayanikā, wife of Sātakarṇi I (*ibid.*, p. lxxxiii). The close resemblance in type suggests that Mula Sadakaṇi of the present coin very probably belonged to the same family. Palæography shows that Mula could not have come much later than Kaḷalāya. Probably he was a son of the former. The coins of Queen Nayanikā's father have so far been found only in Chitaldurg district. That the present coin should have been found in Satara district, about 350 miles north of Chitaldurg, does not go against the proposed identification as coins travel long distances with their owners. We know further from the larger Nānāghāt inscription that when Sātakarṇi I died, his sons were very young, and that the administration was being carried by his widowed queen as the regent. It is quite probable that she may have taken help in the task from her brother, entrusting to his care the western portions of her vast dominions. Mahārāshṭra may well have been entrusted to his care, and it is therefore quite natural that his coins should be found in Satara district, so far away from Chitaldurg. I would therefore tentatively suggest that the present coin should be attributed to a member of the Sadakana family, who was very probably a son of Kaḷalāya of Chitaldurg coins.

(2) A coin of Vāsishṭhīputra Viḷivāyakura.



Obv. Bow and arrow ; circular legend, commencing (XII)
Raño Vasi (thiputasa Viḷivā) yakurasa.

Rev. Chaitya of four tiers, with a dot in each arch, surmounted by a crescent and a tree, standing on a railing ornamented with scroll and dots ; left, *Nandīpāda*, right, a damaged symbol.

Metal, potin ; shape, circular with a diameter of .7", weight, 45 gr.

Though the legend is fragmentary, the attribution of this coin presents no difficulty. It is undoubtedly a coin of King Vāsishṭhīputra Viḷivāyakura, whose coins were discovered in the Kolhāpur hoard. Only six of the potin coins in that hoard were of some use for the purpose of decipherment (*J.B.B.R.A.S.*, XIII, p. 303) ; the present coin showing half the legend in a legible condition is therefore a rare one. Most of the

bow and arrow type of coins published so far have come from the Kolhāpur hoard. The present coin was discovered in the bed of the Kṛishṇā river in Satara district and would show that if Vāsishṭhīputra Viḷivāyakura was a feudatory, his sway extended over the Satara district as well.




A. S. ALTEKAR.

331. NOTE ON AN ALLEGED COIN OF RUDRASENA.

It has been suggested recently by Mr. K. P. Jayaswal that the coin published in the Indian Museum Catalogue of Coins, Plate XX, No. 5, should be attributed to the Vākātaka ruler Rudrasena I (*J.B.O.R.S.*, Vol. XIX, pp. 72-73 and plate III). This view, however, does not seem to be a correct one. It is very doubtful whether on the obverse of this coin we can read above the wheel the letters *Rudra*. Several other coins of this very type have been published and we naturally expect them to show the legend *Rudra* in the place concerned. Cunningham is said to have possessed seven coins of this variety, all of which were picked up in or near Kosam (*I.M.C.*, p. 146). We, however, possess only three more facsimiles of other coins of this variety, published in Rapson, *Indian Coins*, pl. III, No. 12, Cunningham, *Coins of Ancient India*, pl. V, No. 7 and Prinsep, *Essays*, Vol. II, pl. 44, No. 6. A glance at these facsimiles will show that they are all identical coins issued from similar dies. Above the wheel there are no traces of the letters *Rudra* but another symbol which looks like a trident or *triratna*. In the facsimile of the coin in the Indian Museum this symbol is but imperfectly seen, but it is quite clear in the three other facsimiles mentioned above. It thus becomes clear that we cannot read the name Rudra above the wheel as has been suggested.

A. S. ALTEKAR.

I. *The So-called Gold Token of Kumāragupta I.*

In Numismatic Supplement, XLIV, No. 309, Rai Bahadur Prayag Dayal has described five thin gold plaques which he found in the cabinet of the Provincial Museum, Lucknow. The most intriguing of these curious pieces has been identified by him as a gold token of Kumāragupta I. I propose to consider here this identification. A cogent objection to the ascription to Kumāragupta I would be that it seems highly improbable that Kumāragupta I, who issued a very large number of gold coins of a great variety of types and also issued silver coins in considerable quantities, should have issued in addition any tokens. We know that he had occasion to order a special issue to be struck, namely his Aśvamedha issue, which in fabric and weight is like the coins issued by him and his predecessors of the Gupta dynasty. The thin piece of gold which Rai Bahadur Prayag Dayal describes as a token of Kumāragupta I, is very unlike the issues of the Gupta Emperors up to and including Kumāragupta I. The fabric and style are entirely dissimilar. Again the attribution of the piece to Kumāragupta I cannot be justified on paleographical grounds. The style of writing and the formation of the letters are unlike those of his numerous known coins. Taking individual letters into consideration the 'ha' in 'Mahendra' on his gold coins is shaped thus :  but on this plaque  which, although a fifth century form, does not occur on any of his coins. On a large number of Kumāragupta's silver coins issued for his western provinces and on his silver-plated coins of Valabhi fabric the letter 'ha' takes the form peculiar to the western Gupta script thus :  while its shape on the plaque is different as we have just seen. Apparently Prayag Dayal has based his identification of the piece solely on the ground of the occurrence on it of the words 'Sri Mahendrāditya'. This, he says, is a name of Kumāragupta I which 'appears on his silver and silver-plated coins'. To be strictly accurate it is only on the silver coins of his western issues and on his coins of Valabhi fabric that he is styled 'Kumāragupta Mahendrāditya' but never simply 'Mahendrāditya'. The legend 'Mahendrāditya' does not occur on his other silver coins or on any of his gold issues. As regards the letter 'ru', which is found next to a cluster of seven dots, Prayag Dayal states that it has 'not been met with so far', 'ru' does not occur on coins of Kumāragupta I, but is

to be found in the field on the coins of Prakāsāditya and Vishṇugupta, two later rulers, and this fact alone would leave no room for doubt that a later date than the reign of Kumāragupta I, must be assigned to the plaque. It does not seem possible to explain with certainty the device on the coin in all its details although Rai Bahadur Prayag Dayal sees in the figure on the plaque 'Garuda in the usual attitude with his wings spread out. To his right are a crescent and an oval object encircled by dots which perhaps stands for the sun'. What look like very small circular dots are not to be found round any motif on any known Gupta coin but are to be found on later coins, e.g., round the elephants in the abhisheka scene on the reverse of Saśāṅka's coins (*vide* B.M.C., Pl. XXIV, 1), and this also points to a later date. So also does the border of large dots, which is quite unlike the border of little dots to be found on Gupta coins, but occurs for the first time on the late imitation Gupta coins found in Bengal, and is a characteristic feature of the coinage of a number of rulers of mediæval India, e.g. Gāṅgeyadeva of Chedi.

If due weight is given to all the above considerations we cannot but come to the conclusion that the identification of the plaque under discussion as a gold token of Kumāragupta I must be rejected and the plaque must be assigned to some later king of the sixth or seventh century A.D. who may have taken the title of 'Mahendrāditya', possibly the Kumāragupta of the Bhitari seal.

As regards the remaining pieces described by Prayag Dayal, they are all very crude and can only be described as clumsy plaques, on which the design is a travesty of motifs occurring on numerous Kushan and Gupta coins. These pieces and the so-called token are not unconnected, as the size is about the same and all have similar borders of dots and the execution is crude, although the so-called token is of better workmanship than the others. Other points of agreement are the light weight and thinness of gold, which has been impressed on dies so that the design stands out in relief on one side only. Their broad style reminds one of the late imitation Gupta coins of Bengal, but, in the absence of any recorded data of their provenance, we cannot assign them to any particular locality. Probably they were intended for use as charms or ornaments, like the gold plaque with a head in profile embossed on it, found at Bhitā by Sir John Marshall (Annual Report of the Archæological Survey of India, 1911, Pl. XXXII, No. 11).

II. *A Rare Variety of Samudragupta's Standard Type.*

There is a very rare variety of the Standard type of Samudragupta's coinage to which the attention of numismatists does not appear to have been drawn by the leading authority on the Gupta series, Mr. John Allan, the author of the British Museum catalogue, or by previous writers such as V. A. Smith and Prof. Rapson. This is a coin on which the king is shown wearing a dagger. I have a fine specimen in my collection and have noticed one in the British Museum (B.M.C., Pl. I, 12), but I find that this variety is not represented in the Indian Museum collection. Particulars of the coin illustrated above from my collection are :—



AV. S. 8—*Obv.* Samaraśatavitatavi . . . ripuraji . .

Wt. 121·0. *Rev.* Parākramah.

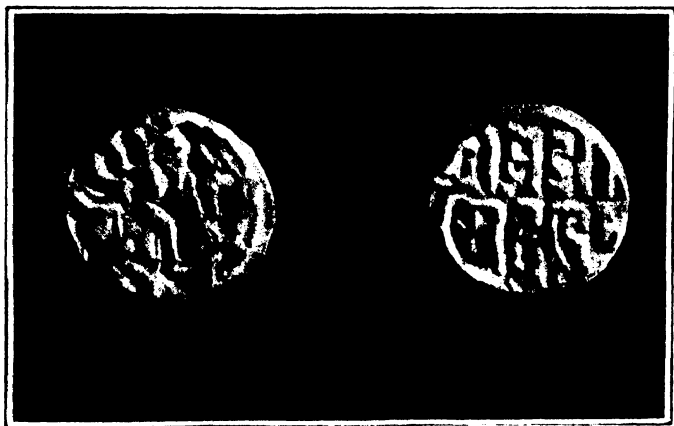
Symbols on reverse on right and left of throne as on B.M.C., Pl. I, 12, but the die is different.

The importance of the coin for numismatists lies in the fact that it establishes a link with varieties of the Battle-axe type in which the king is represented as wearing a dagger (B.M.C., Pl. IV, 8–10, 15). The dagger variety, as we might call this coin, of the Standard type is earlier and the use of the weapon on the Battle-axe type is a development from it ; in the former the dagger is worn in an aslant fashion in front and in the latter like a short sword at the side.

AJIT GHOSE.

333. A GOLD COIN OF VIRASIMHA.

This coin is in the collection of Mr. Ajit Ghose, the well-known collector of antiquities and coins of Calcutta. It was obtained from Gwalior, and may, therefore, be considered as originating from its neighbourhood.



Its obverse shows an unusually spirited representation of a horse with a warrior riding it. The horse is in full gallop, the tail is up, the head bent down; on the crest there appears to be two feathers or similar ornamentation, and there are clear traces of a saddle, which is rather rare in representations of this period. The rider in his uplifted right hand seems to be carrying some weapons, while his left holds the reins. On the whole the horseman compares very favourably with the stereotyped linear representations familiar on the coins of the Shahiyas and their imitations which lack the strong relief of the present coin. On the reverse the legend in two lines is written in characters of about the 12th century A.D., line 1, *Śrīmad-Vīra*, and line 2, *Simhadeva*. There are traces of some device, apparently a lotus below the second line. The border of dots can be discerned on the obverse and also possibly on the reverse. The gold appears to be quite yellow and pure, but the size is very small ('45" in diameter) and weight only 13·8 grain.

The only king of the name of Virasimha, of whom we have any record about this period, is the prince who is the donor of the copper-plate published in the *Journal of the American Oriental Society*, Vol. VI, pp. 542ff. It refers to the gift of this

king from his fort of Nalapura (the modern Narwar, a District in Gwalior State) in the year V. S. 1177=1120-21 A.D. The king who calls himself Mahārājādhirāja, belongs to the Kachchhapaghāta Dynasty, his predecessors being named as Gaganasimha and Śaradasimha. It is this king to whom the present coin can be attributed with certainty. Gold coins weighing from 66 to 68 grains were issued about this period by the Rāthor king Govinda Chandra whose dominions lay to the north-east, the Chedi Kings to the south-east had their own coinage, while the Tomara King Mahīpala who ruled over Delhi and Ajmer to the north and north-west, issued copper coins. Virasimha, however, seems to have designed an original type, in which the horseman was adopted on the obverse and a legend more or less on the lines of the coins of Chandellas and Gaharwars on the reverse.

The present coin is almost similar in weight to the base issues of Jājalladeva which appear to be about one-fifth the weight of the bigger pieces or *drammas*. In Vincent Smith's Indian Museum Catalogue, p. 251, the coins of Gāṅgeyadeva weighing 7 grain, were supposed to have been equivalent to one-eighth *dramma*. I should, however, think that as most of the coins weigh from 60 to 64 grain, and some coins of Govinda Chandra weigh even as much as 68 grain, it is likely that the standard weight was about 70 grain, and the small coins weighing from 13 to 14 grain may be considered as one-fifth and those weighing 7 grain as one-tenth of a *dramma*. It is, however, likely that there was no uniformity in the standard of the issues of the various dynasties of the Central and Northern India at this period.

A class of gold coins with the legend, *Śrīmad-Vīrasimha-Rāma*, is known. One specimen exists in the Lucknow Museum and another found in the Gorakhpur District was published by Vincent Smith in *J.A.S.B.*, Vol. LXVI, Pt. I, 1897, p. 308. The reverse side shows a seated god almost like that on the coins of Gāṅgeyadeva, but the deity is a male figure, holding *chakra* and *gadā* in the hands and thus appears to be a form of Viṣṇu, instead of the goddess on other coins of this period. Vincent Smith regarded this coin as a puzzle, as he could not find any king with the name of *Vīrasimha-Rāma* in the lists of the Kalachuri, Chandela, Rathor, Tomar or Chauhan dynasties. It does not seem probable that Virasimhadeva and Vīrasimha-Rāma were names of one and the same individual, as the locality where the present coin was acquired is situated far away from the eastern United Provinces where the other two coins were collected, and the types are quite different. But the kings appear to belong to the same period, viz. the 11th-12th century A.D.

The coinage of Narwar was continued in the 13th century by two rulers named Malayavarman and Chāhaḍadeva, both of whom issued copper coins with the horseman type on the

obverse. It is, however, remarkable that neither of these rulers belonged to the Kachchhapaghāta Dynasty of Virasimha, the former being a Pratihāra and the latter a Jājapella. It will thus be seen that the present coin is a unique example of the numismatic issue of a dynasty known only from their epigraphical record in Gwalior territory.

K. N. DIKSHIT.

336. A NOTE ON THE BILINGUAL COINS OF SULTAN MAHMUD OF GHAZNI.

The bilingual issues of Sultan Mahmud are well-known from the Catalogue of Coins in the British Museum (Lane poole Nos. 505-514), published in Plate VI. The remarkable point about these coins is the attempt made by Sultan Mahmud for the first and last time in the annals of Muslim Numismatics to translate the whole of the Arabic legend into Sanskrit. The translation of *Allā* by *Avyakta*, and *Rasūl* by *Avatāra*, is in particular an interesting attempt. I would, however, confine here my remarks to the marginal legend which appears on the two types of coins. The word *Bismillā zarb* has been translated almost literally as *Avyaktīya-nāme hatō* (struck in the name of God). The last word is quite clear on a coin which was recently obtained for the Indian Museum. It has been read before as *tata* or *tate*. There is no necessity to read *nāme* for *nāme*, the regular form. The expression *ayam tamkam* is of course not in order, and should have been *ayam tamkaḥ*. The next word may be read as *Mahamūdapure* instead of *Mahāmūdapura*. In coins Nos. 510-514 constituting the second class struck in 419 A.H., the marginal legend is slightly different, the word *avyaktīya-nāme* being dropped and some word added before *Samvati*. The legend here seems to be *ayam tamkam Mahamūdapuraghate hata(o)*. *Ghata* here apparently stands for *ghaṭṭa*=a custom station, then a mint. The word following *hata* has been read as *jikīyera*, but has not yet been satisfactorily explained. I, however, draw the attention of numismatists to the fact, that the word must be some equivalent of the 'Hijri' Era, to which the dates on these coins are to be referred. I tentatively read the word as *Jināyana*, which means the 'passing or transit of the prophet' referring to the Prophet's transit from Mecca to Medina. Here again it is noteworthy that the prophet is referred to as the Jina, a term used by the Buddhists and Jains to denote the founders or supreme teachers of their religion, and it is thus a singularly appropriate expression for a prophet. The word *ayana* means 'transition', as in 'dakshināyana'=the transition (of the sun) to the south, i.e. the summer solstice, and it is aptly applied to the prophet's transit to Medina which was such an important turning point in the history of the Islamic faith that a new era was calculated from this date.

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335. THE TRIBAL COINS OF NORTHERN INDIA.

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INTRODUCTION.

Monarchy was the form of government that prevailed in the Vedic period. It was in post-Vedic times, that experiments in constitution making began, and republics and aristocracies came into existence. Mr. K. P. Jayaswal in his monumental work on Hindu Polity has given us all the available data about them. The Republics were generally designated *Gaṇas*, as these states or *Samṅhas* were governed by assemblies, 'so-called because of the 'number' or 'numbering' of the members present'.¹ Pāṇini (C. 500 B.C.) refers to a number of republics which are designated *Āyudhajīvin* Samṅhas i.e. the Samṅhas which 'observed the practice of arms or military art'. These are : ' (1) the Vṛika, (2) the Dāmani (and others), (3) the Trigartta-Shashṭha or the League of the six Trigarttas, (4) the Yaudheyas "and others" and the Parśva and others. The six Trigarttas were the (a) the Kaundoparatha, (b) the Dāṇdaki, (c) the Kausṭaki, (d) the Jālamāni, (e) the Brāhmagupta, and (f) the Jānaki'.² These republics according to Pāṇini were situated in the Vāhika country which is interpreted by Jayaswal to mean the country of the rivers and comprised the Sindh valley and the Punjab. Pāṇini also names six other communities which are known to be republics—(1) the Madra, (2) the Vṛiji, (3) the Rājanya, (4) the Andhaka-Vṛishṇi (5) the Mahārāja, and (6) the Bharga. Buddhist Literature also records the names of a

¹ Jayaswal—Hindu Polity, p. 27.

² *Ibid.*, p. 35.

number of republics—(a) the Sākya of Kapilāvastu, (b) the Koliyas of Rāmāgrāma, (c) the Lichchavis of Vaiśālī, (d) the Videhas of Mithilā, (e) the Mallas of Kuśinagar and Pāvā, (f) the Moriyas of Pippalivana, (g) the Bulis of Allakappa and (h) the Bhaggas or the Bhargas. The Lichchavis and the Videhas were jointly called the Vrijis or Vajjis. These states extended 'from the districts of Gorakhpur and Ballia to the district of Bhagalpur, to the north of Magadha and the south of the Himalayas'.¹

Another group of republics is referred to by Kautīlya. Of the *Rājasābdopajivin* Saṅghas i.e. the republics in which the leaders had the title of kings, Kautīlya 'enumerates: (1) the Lichchhivikas, (2) the Vrijikas, (3) the Mallakas, (4) the Madrakas, (5) the Kukuras, (6) the Kurus, (7) the Pāñchālas and others'.² The other class of republics, the *Sāstropajivin* Saṅghas were: (1) the Kāmbojas, (2) the Surāshtras, (3) the Kshatriyas, (4) the Śreṇis and others'.³ The Vrijis here perhaps refer to the Videhas only. Some of these states changed from monarchy to republic e.g. the Kurus, the Videhas and the Pāñchālas. The Lichchhavis are famous in Buddhist Literature and had a long history, but the Mallas perhaps did not survive the Mauryas; so also was the case with the Kurus. The Pāñchālas however came down to the time of Patañjali, i.e. after the Mauryas. The Kukuras were members of the Andhaka-Vrishni League. The Kāmbojas lived in eastern Afghanistan, the Surāshtras in Kathiawar and the Kshatriyas and Śreṇis in Sindh. Jayaswal's identification of the Kshatriyas, the Xathroi of the Macedonian writers as a political body and not a caste denomination is fully justified. The *Argesinæ* with its variants *Agesinæ*, *Acensoni* etc. can surely be identified with the *Agra-Śreṇis* or the First Śreṇī, i.e. one of the branches of the republican people the Śreṇis which had perhaps a number of divisions, like the 3 sections of the Yaudhayas, of which the 2nd and the 3rd sections are referred to specifically, on their coins.

The Macedonian writers give a long list of aristocratic and republican states with which the Greeks under Alexander came into contact. The *Kathaïans* (the *Kathas*) lived to the east of the Ravi or the Hydraotes including the districts of Lahore and Amritsar, and their capital was Sankala. Alexander met with a number of republics before he reached the Kathaïans. At a little distance from the Ravi dwelt the *Adrestai* who had been identified by Jayaswal with the *Arishtas* of Pāṇini. The *Sabhuti* state, was situated near the Kathaïan territory and extended to the Salt Range. On the east of the Hyphasis or Beas dwelt a people with an aristocratic form of government and Jayaswal suggests from the discovery of the *Yaudheya* coins in the locality

¹ *Ibid.*, p. 48.² *Ibid.*, p. 57.³ *Ibid.*, p. 60.

that they were really the Yaudheyas of old who were good agriculturists, brave in war and had an excellent system of government.

Alexander during his retreat met with a number of republics which covered the region down the Indus to the Baluchistan frontier. The most powerful states were the *Oxydrakai*, the *Malloi* and the *Siboi*,—the Kshudrakas, the Mālavas and the Sivi or Saibyas. The Mālavas dwelt on the Jhelum below its confluence with the Chenab, while the Kshudrakas had their territories higher up. The Sivi also dwelt near the Mālavas. Nearby lived the Agsinæ who have been identified with the Agra-Srenis by Jayaswal and the next republican people were the *Ambashthas* who are referred to by the Greeks as *Sambastai* or the *Abastanoi*. The *Xathroi*, the *Ossadioi* and the *Musicani* have been restored to their Sanskrit forms by Jayaswal as the Kshatriyas, the Vasātis and the Muchukarna. The *Brachmanoi*, were the Brāhmanas who had a little republic to the north of *Patala* which was situated in the Indus delta, identified with Hyderabad in Sindh. The *Phegelas* and the *Glaukanikoi* have been identified with the Bhagala of the Gaṇapāṭha and Glauchukāyanakas of the Kāśikā. It is thus evident that in the 4th century B.C. the Punjab and Sindh region was covered by a large number of republican and aristocratic states and we have no reason to take the list of the Greek writers as exhaustive. Alexander did not traverse the whole Punjab, so it is reasonable to expect that there were other republics in the Vāhika country and Jayaswal mentions the names of the *Yaudheyas*, the *Āraṭtas*, the *Sayandas*, the *Gopālavas*, and the *Kaundēbrisas*.

The establishment of the Maurya Empire sounded the death-knell of the smaller republican or aristocratic states. Only the bigger states like the *Kshudrakas*, the *Mālavas*, the *Rāshtrikas*, the *Bhojakas* and the *Vrijis* survived the imperial domination. A few are also mentioned by Asoka in his Rock Edicts. There is no doubt that the *Rāshtrika-Bhojas* and the *Pitnikas* had republican constitutions. The *Gāndhāras*, the *Nābhakas* and the *Nābha-paṅktis*, and the *Yavanas* had perhaps a similar system of government. But as regards the *Andhras* and the *Pulindas*, we have no definite data, though Jayaswal would like to infer that as *Rājavishayas* i.e. 'ruling (or sovereign) countries (or districts)', they were of the same category i.e. republican.

Only the stronger republics outlived the imperial domination of the Mauryas. But a few new states came into existence under the Śungas. In Mr. Jayaswal's opinion, the establishment of the Northern Satraps at Mathura compelled the stronger republics to migrate to Rajputana. The Yaudheyas, the Madras, the Mālavas and the Sibi left their original homes in the Punjab and migrated to the desert region of Rajputana for comparative safety. It was their love of independence that constrained them

to exchange their fertile lands for their new homes. The *Ārjunāyanas* perhaps came into existence during the Śunga times and they also migrated to Rajputana. The *Vāmāthas* and the *Sālanākāyanas* are also supposed to have been 'founded in the closing and weak period of the Mauryas'. The *Kukurās* and the *Sūdras* remained in their original homes in the Punjab and the *Vṛishṇis* are found in Mathurā where they lived as of old. Jayaswal has succeeded in rescuing the names of a number of such states, but it is evident that the republican and aristocratic states were very large in number and scattered over the whole country, and they passed through various changes in constitution. The non-monarchical states disappear in the 5th century A.D. and for this, perhaps, the Imperial Guptas were mainly responsible.

It is absolutely certain that these non-monarchical states or at least many of them issued coins when the new invention came into existence in this country, perhaps early in the 8th century B.C.¹ But the earlier coins were of the punch-marked variety. So it is not possible to ascribe these coins, with symbols impressed on them, to the different republican or aristocratic states. If we could identify these symbols which served as emblems or insignias of the different states, a correct identification of the coins would be possible. But the data available are not sufficient to identify the old punch-marked coins issued by the tribal states. Even when the system of die-struck coins with legends on them, came into use, some of the tribes refrained from adopting the innovation. The Madras were the contemporaries of Samudragupta but they left no inscribed coins. We cannot therefore, expect to identify all the tribal coins even of the latest period.

The Tribes and Peoples with non-monarchical constitutions which issued inscribed coins and about whose identity there is absolutely no doubt are the following—the *Ārjunāyanas*, *Aśvakas*, *Audumbaras*, *Kulūtas*, *Kuṇindas*, *Mahārāja Janapada*, *Mālavas*, *Nāgas*, *Sibis*, *Rājanya Janapada*, *Vimakas*, *Vṛishṇis*, *Uddehikas*, and the *Yaudheyas*. In the case of the *Vimakas*, their coins only, testify as to their existence; we have no reference to them elsewhere, and this is the only source of information about them. A discussion about the tribal coins of die-struck variety might enable us to identify their punch-marked coins also, as a result of the recognition of their special symbols.

The forms of the coin-legends incidentally point to their political organisation. Some of the republics issued coins in the name of the *Gaṇa* e.g. the *Yaudheyas*, the *Mālavas*, the *Ārjunāyanas* and others. Some of the *Yaudheya* coins were

¹ S. K. Chakraborty—A Study of Ancient Indian Numismatics, Chapter II.

issued in the name of the *Gaṇa* and their *Mantra-dharas*¹ or the Executive Council. The Vṛishṇi coins were perhaps issued in the name of the *Rājanya* and the *Gaṇa*. Jayaswal has determined the 'constitutional significance of the word *Rājanya*' and takes it to mean 'the leaders of the families consecrated to rulership' among the Vṛishṇis who had perhaps an aristocratic constitution. There is nothing improbable in the issue of coins by the republican states in the names of their executive heads e.g. *Rājanya-Mahamitasa*, (of the *Rājanya* or President *Mahāmītra*)² and such others.

THE WEIGHT-SYSTEMS.

The punch-marked coins of copper and silver are the oldest coins of this country. These are based upon two weight systems—one for silver, the *Purāṇas* or *Dharaṇas*, and the other for copper, the *Kārshāpaṇa*,³ both however dependent upon the *rati* or *raktika* 'the red-and-black berry of the *Guñja* plant' also known as *Kṛishṇala* or the 'black'.⁴ The silver *Purāṇa* weighs 32 *ratis* while the copper *Kārshāpaṇa* was of 80 *ratis* and these coins had their sub-multiples—the *ardha*, *pāda* and so on. The *Purāṇa* is equated to 56 and a *Kārshāpaṇa* to 140 grains by Prof. Bhandarkar.⁵ The extant coins however fall far short of the standard weight and this will be evident from a comparison of the weights of the coins catalogued by V. Smith.⁶ In the case of the copper coins the variation from the standard weight seems to be greater than in the case of the silver ones. In determining the amount of variation from the standard weight, we have to grapple with some uncertain factors. First of all the weight of the *rati* is not fixed. It is the seed of a tree and the ripe fruits are sure to vary in size and weight. As a matter of fact some of the scholars who took the trouble of weighing a large number of ripe *Guñja* seeds arrived at different averages. Cunningham takes a *rati* as equal to 1.83 gr., Elliot as 1.68 gr., Smith as 1.825 while Bhandarkar equates a *rati* to 1.75 gr.⁷; it is likely that the *rati* weight was not the same throughout the country. Moreover we have to take into account the wear and tear to which the coins were subjected throughout the centuries that they were in circulation, the corroding influence

¹ J.H.P.1., pp. 40, 83, 151, 181.

² *Ibid.*, p. 160.

Cunningham, Sir A.—Coins of Ancient India, p. 69 (pl. IV, figs. 8 and 9).

³ Chakraborty, S. K.—A Study of Ancient Indian Numismatics, Chapter III—'Weights and Coin Denominations'.

⁴ Cunningham, Sir A.—Coins of Ancient India, p. 45.

⁵ Bhandarkar, D. R.—Ancient Indian Numismatics, p. 212.

⁶ Smith, V. A.—Catalogue of Coins in Indian Museum, pp. 136–142.

⁷ Chakraborty, S. K.—A Study of Ancient Indian Numismatics, p. 51.

of earth and climate and the inveterate habit of clipping, a vice which was very prevalent before the introduction of milled edge to the coins in recent times. It is difficult however to determine upon the percentage of variation that must be allowed for the different factors but the cumulative result is a marked difference from the standard weight which seems to be greater in the case of copper. Cunningham took 800 punch-marked silver coins from all parts of India and found the average weight as 'upwards of 47 grains', that is, a loss of 9 grains taking 56 grains as the standard weight of a Purāṇa (or 19 p.c.). He also hazards that 'the average loss of these punch-marked coins was not more than one grain and a half in a century',¹ if these coins are taken to be in circulation for 600 years from 450 B.C. to 150 A.D. But his conclusion is vitiated, as it is impossible to take for all these coins a life of 600 years; some of them might be recent issues, minted just before the punch-marked coinage went out of use. So Cunningham's estimate of loss seems to be the lowest for the silver coins; actually the loss must have been much greater; while in the case of the copper coins, taking into account the nature of the metal itself, the loss must have been heavier. The conclusion therefore that we cannot expect the extant coins to be exactly of the standard weight, whether of indigenous or foreign origin is well-attested and admits of no doubt; but the greater the variation from the standard weight, the less reliable are our conclusions about the identification of the weight standard.

A new standard weight was introduced by the Persians with their occupation of the Punjab by Darius I Hystaspes. His gold coins the *Darics* weighed about 130 grs. and the silver coins of the Persian Empire, the *sigloi* were equated to 86.45 grs.² Very few gold *Darics* came to this country but the silver *sigloi* came to this country in the course of commerce in comparatively large numbers. India though a producer of the precious metal had no gold coinage before the Kushanas and the difference in the price ratio between gold and silver in India as compared with the West, facilitated the export of gold from India and made it highly profitable to bring in silver either in specie or in coins from outside.³ The Athenian 'owls', the Seleucidan coins and their Indian imitations were based upon the Attic drachm of 67.5 grains.⁴ The multiples of the drachm were the tetradrachm, didrachm and the sub-multiples were the tetrobol, diobol, trihemibol and the obol. The Graeco-Bactrian kings also adopted the Attic standard and their coinage was based upon the Attic drachm of 67.5 grs. But the later Indo-Greek kings gradually swung on to the Persian standard and gave up the

¹ Cunningham, Sir A.—Coins of Ancient India, p. 55.

² *Cambridge History of India*, Vol. I, pp. 342–44.

³ *Ibid.*, p. 343.

⁴ *Ibid.*, p. 387.

Attic weight standard.¹ Heliocles was the first to adopt the new standard; and he as also his successors, Apollodotus and Antialcidas used both the Attic and Indo-Persian standards. The later Greek princes used only the Indo-Persian Standard, a step which cannot be satisfactorily explained. The argument is put forward by Gardner that the change was due to the change in the relative value of the two metals, gold and silver, but this is not a cogent reason. Von Sallet regards it 'as reduced from the Attic standard'.² The acceptance of the new standard was perhaps facilitated by the fact that the region where the Indo-Greek kings ruled had been habituated to the Persian standard when it was under Persian domination. The weight of the extant drachms of the Indo-Persic standard naturally varies but there is no doubt that it was substantially the half of a siglos of 86·45 grains, or perhaps a little less. None of the hemi-drachms of the Indo-Greek kings in the Indian Museum exceed 40 grains in weight. One coin of Antimachos II Nikephoros weighs 39·8 grs.³; another coin of the same king in fine condition weighs 37·1 grs.⁴ Of Nahapāna's coins in the British Museum of the same standard weight, the heaviest weighs 39·3 and the lightest 25·5 grs.⁵ So it is practically certain that the Indo-Persian standard was a little less than the pure Persian standard, and 40 grains may be approximately taken to be the maximum weight of these hemi-drachms of the Indo-Greek rulers and those Indian states or tribes or foreign rulers who followed in their wake. However the influence of the Indo-Greek kings was so great that their hemi-drachm of Indo-Persic standard was not only adopted by the people in the western half of Hindustan but also by the Western Satraps of Saurāshtra and Mālwā, and Rañjubula, the satrap of Mathurā.

Of the tribal states the Audumbaras, Kuṇindas, Vimakas, Vṛishnis and the Yaudheyas used silver coins. The Audumbara coin of Dharaghosha (C.C.A.I., p. 67) weighs 37·5 grains. The eight Kuṇinda coins in Smith's catalogue vary in weight from 30·8 to 34·2, the Vṛishni coin has a weight of 32 grains, while the weight of the Yaudheya coins in Cunningham's collection is only 26 grains, much below the average. However there is no doubt that these tribal silver coins are based upon the Indo-Persian standard weight and not on the indigenous weight system of the Purāṇas or Dharāṇas. As regards the copper coins, the identification of the weight standard is exceedingly difficult and in some cases practically impossible. The copper coins may be divided into two sections, those of the monometallic tribes and those of

¹ Rapson, E. J.—Indian Coins, p. 6.

² *Ibid.*, p. 3.

³ Smith—Catalogue of Coins in I.M., p. 29 (No. 12).

⁴ *Ibid.*, p. 29 (No. 1).

⁵ Rapson, E. J.—Catalogue of Coins of the Andhra Dynasty, etc., pp. 65–70.

people who adopted bimetallism, the two classes being influenced by different monetary principles. Monometallic issues stand apart by themselves, but in the case of bimetallism variations in the relative value of the two metals introduce certain complications in working the monetary system. In India, the monometallism of copper can be regarded as more natural than that of silver, not only because the white metal was rarer and imported from abroad,¹ but because copper seems to have been coined earlier in India. Even copper appears to have fetched a good value in the beginning, but the advent of silver in larger quantities, particularly after the introduction of foreign coinage under the Persian, Indo-Greek and Parthian influence, threw copper to a subordinate position.²

The Ārjunāyanas Āsvakas, Kulūtas, Mahārāja Janapada, Rājanya Janapada, Sibis, Uddehikas Nāgas and Mālavas issued copper coins only. If any one of them had silver issues, these have not yet been discovered. It is evident that some of these tribes followed the traditional weight standard of the Kārshāpaṇa of 80 ratis for copper coins and the variation in weight of the extant coins may be explained as due to the variation in the weight of the rati in the different parts of the country. The Āsvaka coin in Smith's catalogue (No. 13, p. 157) weighs 146·4 grs. and the other one reproduced by Cunningham weighs 145 grs. So it is clear that they are Kārshāpaṇas of 80 ratis. The actual weight might have been a little more and proves the rati to be a little heavy. The two Ārjunāyana coins in Smith's catalogue weigh 61·3 and 14·8—the heavier is evidently a Half-Kārshāpaṇa and the lighter is one-eighth Kārshāpaṇa or Dvi-Māṣaka. But there can be no doubt that the Sibis had a different weight standard. And of the ten specimens, one has a weight of 18 grains and the others weigh from 63 to 84 grs. The 4 Rājanya coins of pure copper in Smith's catalogue weigh 57·8, 50·4, 79 and 76 grs.; and the weights of the 4 other brass or pale bronze coins of this tribe are 22, 45·3, 34·5 and 68·2 grs.; consequently these coins cannot be ascribed to the system based upon the indigenous weight standard e.g. Kārshāpaṇa of 80 ratis. How much alloy was introduced in the brass pieces and what was the relative value of the metals, we are not in a position to determine without the chemical examination of the contents. We have therefore, no data to come to any positive and final conclusion about the identity of the weight standard adopted by the Sibis, the Rājanyas and also of the Mālavas and Nāgas. But a comparison of the weights of the Mālava and Nāga coins raises a strong presumption that there is some affinity, if not identity, in the weight-systems adopted by these two peoples. Most of

¹ Cunningham, Sir A.—Coins of Ancient India, p. 5.

² Chakraborty, S. K.—A Study of Ancient Indian Numismatics, pp. 76-78.

the coins of the Nāgas are very small and the weight varies from 6·3 to 26·2 grs. One coin (No. 15—Smith's catalogue) is unusually thick and weighs 42 grs. If we take the heaviest Nāga coin of 42 grs. to be of standard weight, then it is possible to arrange the other specimens as its sub-multiples—three-fourth, half, and one-fourth ; in every case the diminution due to wear and tear etc. being left out of consideration. The weight of 42 grs. is almost that of the silver hemi-drachms. Consequently it appears likely that these copper coins were made equal in weight to that of the silver coins on purpose and an attempt was made to facilitate the interchange of the copper coins with the silver ones from outside—so many copper coins for one silver coin fixed according to the market ratio of the two metals. The Mālava coins are smaller still ; the weight ranges from 1·7 to 40·3 grs. The coin No. 106 in Smith's catalogue is the smallest in the collection and Mālava coins are among the most 'curious and enigmatical'. It is impossible to arrange these coins according to any weight-system and it is almost sure that the same weight-system was not adhered to throughout the period these coins were in circulation. The standard must have varied for the different periods and it might have been due to the change in the relative value of copper and silver. However we have no sufficient data to come to any definite conclusion ; though we should always keep in mind the statement that 'the various systems of weight used in India combine uniformity of scale with immense variations in the weight of units'.¹

The Audumbaras, the Kuṇindas and the Yaudheyas had the bimetallic system of silver and copper. The Vimakas and Vrishnis perhaps had the same system but up to this time only silver coins of these two tribes have been discovered. The copper coins in the case of the bimetallic tribes may be taken to be token coins. But in ancient times the intrinsic and the face value of the coins must have been almost identical ; otherwise a great scope would be given to the forgers to enrich themselves. When we consider the ease with which the ancient coins could be manipulated, it would have been not only foolish but highly detrimental to trade and commerce to allow any loophole to dishonest persons to secure undue gains. Consequently the weight of the token coins must vary with the variation in the relative price of the two metals, silver and copper.

In the first quarter of the 2nd century A.D. the ratio between gold and silver was 1 : 10² and there are reasons to believe that the ratio between silver and copper was 1 : 5·7³ ;

¹ Rapson, E. J.—Catalogue of Coins of the Andhra Dynasty, etc., p. CLXXXI—quoted from the Imperial Gazetteer of India.

² *Ibid.*, p. CLXXXV.

³ Chakraborty, S. K.—A Study of Ancient Indian Numismatics, p. 87.

the average weight of the 8 silver coins of the Kuṇindas in Smith's catalogue is 32·6, while No. 12, a brass coin weighs 177 grs. and a copper coin No. 13 weighs 144 grs. We know that the copper coins suffer more from wear and tear ; and we may take the copper coin approximately 5 times in weight and consequently equal in value to the contemporaneous silver hemi-drachms. So the inference that the copper coins were equal in value to the standard silver coin may be accepted and the other copper coins of lesser weight must be considered to be its sub-multiples. We know that the price of copper relative to silver cannot remain constant, it must vary with the variation in the ratio. As time went on copper must be cheaper, and more and more copper would be needed to equate a copper coin to the standard silver coin, of constant weight. So we can expect the later copper coins to be heavier in weight.

The Chatreśvara type copper coins of the Kuṇindas (Smith—p. 170) are surely much later than the Amoghabhūti type coins which were in circulation from 150 B.C. to 100 A.D. The coin No. 36 (Smith's catalogue) weighs 221·6 and another in Cunningham's collection (Pl. V, fig. 5, p. 72) is 291 grs. in weight. If we take 291 grs. to be the unit, then the other is a $\frac{2}{3}$ th piece. It appears that by this time the Kuṇindas gave up the bimetallic system and struck to one metal viz. copper ; the consequent difficulty was obviated by increasing the weight of the coins, which was more than double the original standard (Smith No. 13, and Cunningham, Pl. V, fig. 5).

The earliest class of Yaudheya coins—the Bull : Elephant Type—dates from the 'beginning of the Christian Era', when the Yaudheyas were habituated to the monometallism of copper. The heaviest of the 7 coins in Smith's catalogue (No. 4) weighs 71·1 grs. and in Cunningham's collection the heaviest was also 70 grs. So these two coins must be identified as Half-Kārshāpanas of 40 ratis each and the other coins may be deemed to be based upon the same standard. Bimetalism was introduced with the Brahmanyadeva type coins of the 2nd century A.D. These are later than the Amoghabhūti type coins of the Kuṇindas. The silver hemi-drachm (Cunningham, Pl. VI, fig. 9) of the Yaudheyas weighs only 26 grs. and was lighter than the lightest Kuṇinda coin in Smith's catalogue (i.e. 30·8 grs.). The Yaudheya copper coins are however comparatively heavy ; the heaviest No. 15 (Smith's cat.) weighs 178·5 grs. If this copper coin be equated to the silver hemi-drachm of 26 grs. ; the ratio between silver and copper is found to be 1 : 6·8 which in the circumstances is the most reasonable conclusion. This increase in weight is continued in the copper Yaudheya coins of the Warrior type of the 3rd and 4th centuries A.D. But as no silver coin of this type has yet been discovered, the conclusion is irresistible that like the Kuṇindas, the Yaudheyas also, after the 2nd century A.D. fell off from silver. It thus appears that the

Kuṇindas and the Yaudheyas who were already habituated to the bimetallism of silver and copper reverted to the older practice of issuing only in copper. This might be due to the paucity of silver and consequent increase in its price. But a consideration of the monetary condition of the time suggests another explanation which is plausible. The Kushan Emperors introduced the gold coinage in India and this was later adopted by the Imperial Guptas. So it is evident that from the second century India was being gradually acclimatised to the new system and the bimetallism of gold and copper was prevalent in the imperial territories. The poor tribal states were not rich enough to take up gold coinage in imitation of the Imperial coinage and the continuance of silver was a great hindrance and added an element of complexity to the merchants and others who had monetary transactions outside the individual tribal areas. So the simplest and the most convenient thing for them was to drop silver and to stick to copper which could be readily exchanged with the copper issues of the Kushans or linked up with the gold coinage of the Imperial power.

THE METALS.

Various metals and their alloys were used for the purpose of coinage. In ancient India, the earliest coins were of copper¹ but later on silver was also requisitioned for the purpose. Copper is found in ores throughout the country, though it is no longer extensively produced in India. But silver generally came from abroad and the production of this metal was very small indeed. Small quantities have been found though 'associated with lead, in Kūlū and Mānbhum, and at Deogurh in Santal Parganā'.² There is however no doubt that India had to depend mainly on foreign lands for her supply of silver. This is referred to in the *Periplus*³; and the relative price of silver was always high as compared with the West. The mint ratio between gold and silver in the Persian Empire was 1 : 13·3, while in India the ratio was 1 : 8.⁴ This naturally encouraged the importation of silver.

The tribal states naturally based their coinage on copper. Some of them—the Ārjunāyanas, Aśvakas, Kulūtas, Sibis, Uddehikas, Rājanyas, Nāgas, Mālavas and the Mahārāja Janapada confined themselves to copper only, and did not proceed to bimetallism, while the Audumbaras, the Kuṇindas and

¹ 'The most ancient Indian coins, I believe, are copper'—Smith's Catalogue, p. 133.

² Elliot, Sir Walter—Coins of Southern India, p. 51 (footnote No. 1).

³ Schoff, W. H.—The Periplus of the Erythraean Sea, pp. 38, 42, 44 and 287.

⁴ *Cambridge History of India*, Vol. I, p. 343.

the Yaudheyas used both the metals side by side. The coins of the Vṛishṇis and the Vimakas are only in silver ; but the coins of these tribes are very rare and it may be that their coins in copper have not yet been discovered or identified. It is not possible that the Vṛishṇis and the Vimakas had only silver coins while all the neighbouring tribes and states had copper coins, alone or linked with silver. A monometallism of silver therefore seems to be economically unsound, and I have a strong suspicion that the Vṛishṇis and Vimakas had also a bimetallism of silver and copper, though our doubts can only be set at rest by new discoveries. It is however, well-known that 'in ancient India silver and copper coinages were often independent of each other and circulated in different districts. A copper currency was not necessarily regarded as merely auxiliary to silver currency ; but a copper standard prevailed in some districts as a silver standard prevailed in others'.¹

A certain amount of alloy is needed in the manufacture of coins. Kauṭilya lays down that silver coins should be manufactured with $\frac{5}{6}$ ths, i.e. 31·25 p.c. of alloy, and the copper coins with $\frac{1}{4}$ (pādaśvaṁ) i.e. 25 p.c. of alloy.² Cunningham however found by examining 113 silver Kārshāpaṇas³ that the alloy varied from 13·8 to 24·8. The amount of alloy perhaps depended upon the comparative prosperity of the state or tribe. The earliest Indian coins of silver, the Purāṇas or Dharaṇas contained about 20 p.c. of alloy.⁴ The easiest means of debasing the coinage is to increase the amount of alloy and this is generally due to the economic exigencies of the time (as in the reign of Skandagupta), or from the selfish greed of the ruling prince. But a consideration of the evil effects of debasement of coinage on trade would act as a check on the evil propensities of a prince.

The three coins from Almora have been ascribed by Prof. Rapson to a branch of the Kuṇindas. 'They appear to be of some alloy of silver and are heavier than any other Indian coins'.⁵ The increase in weight was perhaps necessitated by the large amount of alloy in these coins and it may be that the issuing authority did not take the trouble of purifying the metal or was unable to do so. Our ignorance of the amount of alloy and the ingredients used for the purpose makes it impossible for us to start a comparison between the coins of the different tribes and the coins of the same tribe in the different periods of its monetary history with a view to come to any conclusion about their economic condition. The different articles which were used as alloys for silver coins were according to

¹ Rapson—Cat. of Indian Coins—Andhras, etc., p. CLXXIX.

² Kauṭilya's Arthaśāstra (trans. by Shāmaśāstry), pp. 98, 105 and 110.

³ Bhandarkar—Ancient Indian Numismatics, p. 157.

⁴ Smith's Catalogue, p. 133.

⁵ Rapson—Indian Coins, p. 10.

Kauṭilya,¹ tāmra (copper), tikshṇa (iron), trapu (tin), sīsa (lead) and añjana (antimony). The commentator of Kauṭilya's Arthaśāstra lays down that the alloy for copper should be 'made up of 4 parts of silver, eleven parts of copper and one part of tikshṇa or any other metal'.² But it is doubtful whether silver was used for the purpose. It will only increase the value of the copper coin and the purpose might be as well served by other cheaper ingredients like tin etc. Brass is an alloy of copper and zinc usually in the proportion of 2 : 1 or 4 : 3, and a cheap alloy of copper and tin is Kaṁsā or bell-metal, much used in this country. A few specimens included in Smith's catalogue—viz. one Audumbara coin (No. 1), six Kuṇḍa coins are of brass and four other Rājanya coins are either brass or pale bronze. We are not in a position to determine the relative purity of the coins of copper or silver and their alloys; and a chemical analysis of the contents of the Ancient Indian Coins is of urgent necessity for the Numismatists.

SHAPE, SIZE AND THE SYSTEM OF MANUFACTURE.

The punch-marked coins are of various shapes and sizes. There is uniformity in one point only viz. an attempt was made to approximate them to the standard weight. In shape, they were very irregular—polygonal, rectangular, square, circular and even triangular; and generally no attempts were made to have the sides straight or regular. This was due to the system of manufacture. A hammered sheet was sub-divided into strips and adjusted to the proper weight, sometimes by clipping the sides.³ As pointed out by Smith, the cutting of circular blanks from a metal sheet was more troublesome than cutting off short pieces of rectangular shape, and they are evidently simplest in form. It is therefore clear that practically no attention was paid to the shape of the coins and their size would vary according to the thickness of the metal sheet. Some of the copper pieces however might have been manufactured from cast blanks. Symbols were then punched into the blanks and the devices were 'incised and not in relief' and as a result 'stood wear well' and the coins remained long in circulation.

In the West, the Lydians were the first inventors of coinage.⁴ They began with globules or buttons of fused metal which were impressed with 'the rude unengraved punches, between which the ingot was placed to receive the blow of the hammer'. The

¹ Kauṭilya—Arthaśāstra (trans. by Shāmaśāstry), pp. 98, 105, 107 and 110.

² Kauṭilya—Arthaśāstra (trans. by Shāmaśāstry), pp. 98, 105, 107 and 110.

³ Whitehead, R. B.—The Pre-Mohammedan Coinage of North-western India, p. 40.

⁴ Macdonald, G.—The Evolution of Coinage, p. 6.

Greeks of Asia Minor introduced the next improvement when they 'substituted the engraved die for the primitive punches'.¹ The Indians became gradually familiar with the western coins and by the 5th century B.C. they imitated the Gorgon Type coins of Eretria (cf. the Rākshasa Type coins of Taxila),² and the Athenian 'owls' and the Persian 'sigloi' came to India in the course of commerce.³ Whether the Indians evolved the system of dies, independent of foreigners or adopted it from foreign countries is a subject of controversy among the numismatists.⁴ There is no reason why the Indians should not have hit upon this device in the course of evolutionary processes as in the West, though it is clear that in the Punjab region, the influence of the foreign system must have been considerable. Moreover no general statement can be made about the monetary condition of the whole country, for we find that even under the Mauryas, the punch-marked system prevailed in the eastern part of the country, while in the Taxila region the die system had contemporaneously come into use. So we can very well infer that in some parts of the country such as the Punjab, it was under the influence of the foreign coinage that the die system replaced the older practice of punching the coins. By the time the Northern Indian Tribes began to issue coins with regular devices and occasionally with inscriptions, they had definitely adopted the die system. At first the device was on one side only, but gradually the double-die system came into vogue. The dies were at first square or rectangular, the traditional shape of the indigenous Indian coins. Gradually however with the introduction of the circular shape for the coins, the dies also were shaped accordingly. This will be evident by a comparison of the two Aśvaka coins in Cunningham's Plate II, figs. 14 and 17.

The blanks were prepared either by casting the metal pieces or by hammering them, which were then die-struck either on one side or both. Another practice was to have the coins wholly cast; the devices being sunk in the moulds. In the Kuninda coins we find the specimens of all the three processes. The general practice however was to have the coins die-struck on hammered blanks. At first however the device did not cover the whole face of the coin and 'the impress of the die is enclosed in a deep incuse square or circle' (cf. the Aśvaka coins Nos. 9, 10, 13 and 14—Pl. II, Cunningham).⁵ This is due to the fact that the coins were struck with dies in a semi-molten condition. It

¹ Head, B. V.—*Coins of the Ancients*, p. 1.

² Chakraborty, S. K.—*A Study of Ancient Indian Numismatics*, p. 212.

³ *Cambridge History of India*, Vol. I, pp. 343, 386-390.

⁴ Bhandarkar, D. R.—*Ancient Indian Numismatics*, p. 40.

⁵ Rapson, E. J.—*Indian Coins*, p. 14.

is sometimes difficult to recognise the exact system of manufacture as regards individual coins.

Casting was a very old practice in India dating from the 5th century B.C.¹ and it was generally employed when the alloy was very poor and the blanks could not stand the shock of being struck by the hammer. The moulds as in other countries were perhaps of iron, stone, or in most cases terracotta, the latter having been found in several excavations. Sometimes a number of coins were manufactured at a single casting, the different forms being joined 'by narrow channels for the passage of the heated metal'.² The ancient dies were perhaps of bronze, iron or steel like those of the Greek or Roman times and it is evident that the two types on the two sides of the same coin are not parallel to each other but lie at an angle to one another. This proves that the two dies were not held together in a hinge.

The chief means of depreciating the coinage was to increase the amount of alloy by the state, thereby bringing down the real value below the face value. The coins of brass or pale bronze, many specimens of which are included (in Smith's catalogue) among the Rājanya and Kuṇḍa coins, are perhaps the result of a conscious attempt at depreciation. But this practice could easily be detected and a clever device was sometimes employed viz. of plating the coins. Copper coins were dipped in silver and passed off as silver coins. It is doubtful whether this device was adopted by the state, or dishonest forgers were guilty of such a practice. This was a very easy method of deception but the old bankers always tested the coins by striking them with a sharp piece of metal. As a result many coins are found covered with shroff-marks which interfere with the correct reading of the legends or proper identification of the type. This practice seems to have been very prevalent during the Pathan period.

The Aśvaka coins and a specimen of the Uddehika coins are single-die struck, the rev. being blank; consequently these are likely to be older than the other tribal coins which were double-die struck. This new system of manufacture gradually stereotyped the shape of the coins as circular. The traditional rectangular shape gave place to the circular, the angular corners being always an inconvenience. The transition is exemplified by the specimens of the Aśvaka coins. The earlier ones (Nos. 9, 11 and 14) are rectangular or roughly square, while the latest (No. 17, Cunningham, Pl. II) is circular. The coins of the Audunībaras, the Kulūtas, the Kuṇḍas and their branch located near Almora, the Sibis, the Vimakas, the Vṛishṇis, the Uddehikas, the Rājanyas, the Mahārāja Janapada, the Nāgas and the Yaudheyas issued circular coins only. The Mālavas

¹ Brown, C. J.—The Coins of India, p. 18.

² Cunningham, Sir A.—Coins of Ancient India, Pl. I, figs. 24 and 25.

however could not shake off their fascination for the rectangular or square shape. They issued circular coins, side by side, with rectangular ones of a very irregular shape. The square shape however now and then asserted itself even up to the late Muslim times. We have square coins of the Malwa Sultans, of Shah Jahan and of Rājeśwara, king of Assam in the 18th century A.D. (1751–1769 A.D.). But the comparative ease with which the circular coins were manufactured under the die system gradually led to the supplanting of the older shape, and the commonest shape for coins became circular in India also. The Mālavas had some circular coins too (Smith's catalogue—Pl. XX and XXI) but it is evident that generally they did not care much about regularity of shape (cf., Pl. XX, Nos. 15, 16, 17 and 24 and Pl. XXI, Nos. 2, 3, 4 etc.).

The size of the coins was not uniform. The standard coins were generally .6 to .7 inch in diameter, except those of the Mālavas and the Nāgas. The three Ārjunāyana coins (C. CAI., p. 89 and S. CCIM., p. 166) are .6 to .65 and .67 in diameter, the circular Āsvaka coin in Smith's catalogue has a diameter of .9 inch; and the Audumbara coins varied from .6 to .75, the silver coin (Cunningham, Pl. IV, fig. 1) had a diameter of .7 inch. The Kulūta coin (Cunningham, Pl. IV, fig. 14) is .75. The silver coins of the Kuṇindas varied from .65 to .75 inch, while the copper coins from .6 to 1.12 inch. Nos. 13 and 36 in Smith's catalogue are the largest pieces, one being 1.12, the biggest in the collection and the other of Chatreśvara type 1.01 inch in diameter. The coin of the Mahārāja Janapada (Cunningham, Pl. IV, fig. 11) has a diameter of .75 inch, while that of the Vimakas (Cunningham, Pl. IV, fig. 6) is .7. The Vṛishṇi coin (Cunningham, Pl. IV, fig. 15) is .6. The Rājanya coins had a diameter from .65 to .83. The Yaudheya coins are generally big in shape. The Bull: Elephant type coins of the Yaudheyas in Smith's catalogue are .7 to .8 inch; the Brahmanya type from .97 to 1.12 inch and the latest of the Yaudheya coins are generally big, from .9 to 1.05 (Smith No. 25). It therefore appears that the later coins are generally bigger in shape and heavier in weight. The coins of the Mālavas and the Nāgas, however stand by themselves. The Nāga coins in Smith's catalogue varied in size from .3 to .45 inch only. The Mālava coins hold the record for their diminutive size and it is strange how they remained in circulation for centuries. These coins were 'confined to Nāgar and the immediate neighbourhood',¹ and testify to the low economic condition of the people and perhaps want of commercial intercourse with the neighbouring peoples and tribes. Some of the coins are mediocre in size e.g. No. 3 in Smith's catalogue is .62 in diameter, but the vast majority are very small and are generally only $\frac{1}{4}$ of an inch.

¹ Smith, V. A.—Catalogue of Coins in I.M., p. 162.

One of the Mālava coins in the Indian Museum in Calcutta is only .2 inch in diameter and 1.7 grs. in weight and 'it may claim the honour of being one of the smallest coins in the world'.¹

THE LEGENDS.

The Types or devices on the coins came to be gradually accompanied by inscriptions. At first the legends occupied a subordinate position, but later on they sometimes supplanted the types. There is no doubt that the inscriptions came to be put on the coins for the purpose of 'explaining or interpreting the device'. The earliest inscribed coin in the West was found at Halicarnassus.² This electrum coin was perhaps struck at Ephesus in the 6th century B.C. It bears a legend meaning—'I am the badge of Phanes', round the Type of a feeding Stag. So it is evident that the legend has a reference to the badge; but sometimes the reference is to the coin itself.

The coin-legends have preserved for us the names of kings and tribes of whom we have no other record, and we derive much help not only in reconstructing the dynastic lists and in determining the chronology but also in fixing 'the geographical extent of the ruling powers'.³ The Vimakas and their king Rudravarma, the Audumbara king Dharaghosha, the Kulūta king Virayaśas and many others are known only from the coins.

The earliest inscribed coins of India date from the 3rd century B.C. The chronology is determined mainly on palæographical considerations. In some of the *sigloi*, dating from the 4th century B.C. or earlier certain characters have been read as Brāhmī and Kharoshthī letters.⁴ But full inscriptions are found on the coins of the Aśvakas and the Uddehikas dating from the 3rd century B.C. e.g. *Vaśasvaka* (coin of the Aśvakas) *Udehaki* (Prince of the Uddehikas). Among the Aśvakas, this innovation is clearly marked. In No. 14 (Pl. II, Cunningham) we have the Type—'A Human Figure with two Hill Symbols on two sides', but in No. 17 (Pl. II—Cunningham) the Hill Symbols on the two sides are arranged one above the other, the human figure with a *svastika* below is placed on the right, and the left field is filled with the inscription in bold and clear Brāhmī letters. The coin of Upagaṇḍa with the legends *Upagaṇḍasa* in early Brāhmī script is according to Bühler at least as old as 350–400 B.C. or before the Mauryas. Inscriptions dating from the 3rd century B.C. are found in the coins of Ayodhyā, Mathurā and Tripurī :—*Visākhadevasa* (of Visākha-

¹ *Ibid.*, p. 163.

² Head, B. V.—*The Coins of the Ancients*, p. 4 (No. 7).

³ *Cambridge History of India*, Vol. I, p. 61.

⁴ Rapson, E. J.—*Indian Coins*, p. 3.

deva) in Ayodhyā; *Upātikyā* in Mathurā and *Tripurī* (in modern Tewar). The earliest inscribed coin from Ujjain dates from the 2nd century B.C., the legend being *Ujeniye*—‘of Ujjain’, the name of the city in its Prākṛit form. So it is evident that legends began to appear in Indian coins in the 4th century B.C. and became common in the 3rd century B.C. In this connection the question arises whether the practice was indigenous or of foreign origin. Prof. Rapson is of opinion that legends on Indian coins ‘appear as the result of Greek influence in the north-west’.¹ We know that the Athenian, Seleucid and Bactrian coins came to this country in the course of commerce and coins of Alexander and Philip Arrhidæus² have been excavated recently at Taxila. When we take this in connection with the fact that the mighty Maurya Emperors went on with the traditional system of punch-marked coins without inscriptions, a strong presumption naturally arises that they looked upon inscribed coins as a foreign innovation. Prof. Rapson thus seems to be substantially correct in taking the inscriptions on Indian coins as due to foreign influence.

The legends assume various forms—(a) genitive of a tribal or denominational, (b) personal or (c) place name; and the reference is to the nation or tribe, the king or the place named. On rare occasions the reference is undoubtedly to the Type or device. To the *first* class pertain the following legends—*Ārjunāyanāna* (of the Ārjunāyanas), *Mahārāja Janapadasa* (of Mahārāja Janapada), *Mālavagaṇasya* (of the Mālava gaṇa) *Mālavānām* (of the Mālavas), *Rājājña Janapadasa* (of the Rājanya Janapada), *Yodheyāna* i.e. Yaudheyānām (of the Yaudheyas), *Odumbarisa* (of the Audumbaras) etc. In some cases we have a reference to the chief town of the tribe e.g. *Majhimikāya Sibi Janapadasa* (of the tribe of the Sibis of Madhyamikā), or a reference to the province where they dwelt e.g. *Bhūpadhanusha* (of the Lord of the Desert) in the Yaudheya coins pointing out the region where the tribe was located. In the *second* class, we have the legends—*Sivadattasa* (of Śivadatta), *Raño Ajamitrasa* (of king Ajamitra), *Raṇa Mahāmitrasa*, (of king Mahāmitra), *Magajasa* (abb. for Mahārāja Gajasa (of Mahārāja Gaja), *Maharaja Śrī Deva Nāgasya* (of Mahārāja Deva Nāga) etc. To the *third* class, we may relegate such legends as—*Kaḍasa* (of Kaḍa), *Upagodasa* (of Upagaṇḍa), *Ujeniye* (of Ujjain) etc. Though the ordinary practice is to have the tribal, personal or place names in the genitive, there are many cases where the names are in the nominative e.g. tribal name—*Malaya*, *Mālaya* or *Malava*, personal names—*Mala*, perhaps the name of a king—the founder of the Mālava tribe, the names of the Mālava kings or chiefs—*Bhapaṃyana* or *Bhāmpāyana*, *Yama* or *Maya*,

¹ *Cambridge History of India*, Vol. I, p. 61.

² *Archæological Survey of India*, 1924-25, pp. 47 and 48.

Jamapaya, *Paya*, *Mapaka* (Mahārāja Paka ?), *Magachha* (Mahārāja Gachha ?) and others, and Mahārāja *Sri Gaṇendra* of the Nāgas etc.; place names—*Tripurī* and others. In the case of the Uddehikas the legend is peculiar; the prince of the tribe is referred to by a noun which is ultimately derived from the tribal name e.g. *Udehaki* (the Prince of the Uddehikas). The legend is thus connected with the coin 'in some vague sort of way'. While ordinarily we find the inscription by the side of the type, in the case of the Mālavas, perhaps for want of space, due to the small size of Malava coins, the legends appear on one side, and the Type on the other. In some of the coins of the Aśvakas and the Yaudheyas, the legends directly refer to the coins themselves e.g. *Vaṭasvaka* meaning the coin (*vaṭa*) of the Aśvakas or in the Yaudheya coins—*Brahmanyadevasya drama* (the drama or coin of Brahmanyadeva) i.e. dedicated to the tribal god Kārttikeya, whose figure serves as the type and appears by the side of the inscription.

The Audumbaras, the Kulūtas, the Kuṇindas, the Vimakas and the Vṛishṇis had their tribal names as well as the names of the ruling princes side by side in the legends e.g. the Audumbara legend.—'Mahadevasa Rājña Dharaghoshasa Odumbarisa'; the names of the two kings Rudradāsa and Śivadāsa spelt as Rudradasa and Śivadasa are introduced in the legends without any change. The Kulūta inscription is 'Rājña Kolutasya Virayaśasya' (of king Virayaśas, the Kolūta); the reference might be to the coin or the Wheel Type by its side. Similar might be the interpretation of the Kuṇinda inscription which we may take to refer to the coin or the Type—'Amaghabhūta maharajasa rājña Kuṇadasa', (coin of Amoghabhūti Mahārāja, Rājā of the Kuṇindas). The Vṛishṇis had a peculiar legend—'Vṛishṇi Rājajñā gaṇasya tratarasya' (of the Vṛishṇi Rājanya (and) Gaṇa—the Protector of the country—Jayaswal).¹ Here the head of the state is not referred to by name but by the official title *Rājanya*. The descriptive word *tratarasya* is rather unique, perhaps borrowed from the legends of some of the Indo-Greek kings who took the title of Soter—Apollodotos, Diodotus II, Diomedes, Dionisios, Hermaios, Minander and Nikias. In the coins of Diomedes the reverse legend in Kharoshthī is *Maharajasa tratarasa Diyamedasa*,² or *Maharajasa tratarasa Apaladatasa*³ in the coins of Apollodotos; and similar such legends of other kings who were perhaps contemporaries with the Vṛishṇis.

In some cases the legends refer to the patron saint or the national god whose figures appear by the side of the inscriptions. In one class of the Audumbara coins, we have the full legend and across the field *Viśpamitra* (Viśwāmitra) which refers

¹ JRAS., 1900, p. 416 (A. V. Bergny); J.H.P.I., p. 157.

² Smith, V. A.—Catalogue of Coins in I.M., p. 16.

³ Ibid., p. 18.

to the standing figure of the Rishi, with right hand raised and the left resting on the waist. Evidently Viśwāmītra was the patron saint of the Audumbaras. There are also some coins which are dedicated to the national gods by the tribes concerned. The Elephant and Bull Type coins of the Audumbaras have the legend—‘*Bhagavato Mahādevasa Rājārājasa*’—‘in the name of the Almighty Mahādeva, the king of kings’. The Chatreśvara Type coins of the Kuṇindas are dedicated to the national god Mahādeva in the form of Chatreśvara. On the *obv.* we have Śiva facing with Trisūl in right hand and leopard skin hanging from the left arm, and Brāhmī legend ‘*Bhāgavata Chatreśvara Mahātmanah*’—‘of the Almighty Mahādeva (Chatreśvara), the great-souled’ there being evident connection between the legend and the Type. The Yaudheyas were warriors per excellence and Brahmanyadeva or Kārttikeya, the War-god was taken by them as their national god, and some of their coins were dedicated to him. The Brahmanyadeva Type coins have on the *obv.* the six-headed god (Kārttikeya) standing on lotus, facing with left hand on hip, and right hand raised and a barbed spear on the left; the full legend is *Bhāgavataḥ svāmīno Brahmanyadevasya*. ‘Of the Divine Lord Brahmanyadeva’. In some specimens *Brahmanyadevasya* is replaced by *Kumārasya*, Kumāra being another name of Kārttikeya and all our doubts about the dedication of these coins to the War-god Kārttikeya are set at rest. So it is evident that whenever there was any risk of being misunderstood, the die-engraver added a descriptive title to clear up the point. In Rome and in some Greek cities, the statues of divinities had their names attached. The best known example is Kimon’s Arethusa in the fine Syracusan coins of c. 400 B.C. In the tribal coins however we do not meet with the portraits of the ruling chiefs; evidently portrait heads had not yet come into use, though in the west the heads of the kings were already introduced on the obverse.

Another class of legends are put up on the coins as the mottos of the different tribes—*Arjunāyanana Jaya*, ‘Victory to the Arjunāyanas, *Mālavānām Jaya* etc., *Mālavaganasya Jaya*, ‘Victory to the Mālava gana’, *Yadhayaganasya jaya* i.e. Yaudheya ganasya jaya or ‘Victory to the Yaudheya gana. In some of the Yaudheya coins occur the numerals *Dvi* and *Tri* in letters and not in figures. These are supposed to refer specifically to the 2nd and the 3rd clans of the Yaudheyas who were obviously divided into three sections.

When the legends first came into use the coins were generally of the single die variety. Consequently the die-engraver had two courses left to him, either to put the inscription by the side of the Type, or to shift it on the reverse to stand by itself, the latter alternative being perhaps the later practice. In the *Aśvaka* coin (Cunningham, Pl. II, No. 17), the inscription—*Vaṭasvaka* is put horizontally on the left hand side in the place

of one of the Hill Symbols. We find the same practice in the early coins of the 2nd or 3rd century B.C. e.g. in Mathurā, the coin with the legend, *Upātikyā*, below the *Svastika* Symbol; in the Tripurī coin, the legend—*Tripurī* accompanied by the 3 symbols *Svastika*, River and Hill; in the Upagaṇḍa coin, the legend *Upagaṇḍa* with the symbols 'circle' and '*nandipada*'—in all these cases the reverse is blank. In a coin from Eran, occurs the legend alone without any Type, and the arrangement of the letters is peculiar—these are arranged from right to left, and this coin is supposed by some of the scholars to be the oldest inscribed coin in India as the letters in the legend *Dhamapālusa* are in a very ancient Brāhmī script. The second device is found in a coin from Ujjain of the 2nd century B.C.—the Elephant on the obv. and the legend on the rev.—*Ujēniye* (of Ujjain); the reference might be to the coin or the Elephant which was perhaps the badge of the city. Many such cases occur in the Mālava coins e.g. in No. 13 (Smith's catalogue), the legend covers the obv., and on the rev. occurs a Vase (*lotā*) in dotted circle. This practice is found in the coins included by Smith in Groups 2, 3, 4, 5 and 6, and also in class B. coins, with the names of chiefs on the obv., and on the rev. the Lion, Elephant, Humped Bull, and other Types.

In some cases, the Mālavas divided the legend in two parts and placed them on the two sides of the coins. One part of the legend stood by itself, while on the other side, the second part was accompanied by a Type or Symbols. But in a few cases, there are Types or Symbols on both the sides and the inscription is divided between the two. The coin No. 1 in Smith's catalogue has on the obv. the word *Jaya* and on the rev. *Mālavānām* accompanied by two symbols; No. 11 has on the obv. Hill symbol and the legend *Jaya*; and on the rev. two symbols with the legend *Mālavāna*. The Mālavas were perhaps compelled to adopt this device on account of the small size of the coins, and this will also explain the irregular arrangement of the letters of the inscriptions. Sometimes they are arranged in a circle or in two lines, or two groups of letters are placed on the two sides of the same Type. But on bigger coins the legend is arranged in a circle round the principal Type on the obv. e.g. among the Arjunāyanas, the Kuṇindas (Chatreśvara Type), the Rājanyas, Yaudheyas and others. The Audumbaras, the Kuṇindas (Amoghahbūti Type), the Kulūtas, the Mahārāja Janapada, the Vimakas, the Vṛishṇis had the same legend on both the sides—in Brāhmī alphabet on one side and in Kharoshthī on the other; and the legends are arranged in a circle round the Types or Symbols. The coins with only legends on both the sides, without any Type or Symbol are very rare—one circular coin is reproduced in Cunningham, Pl. II, No. 21 and rectangular ones in Pl. III, Nos. 8 and 10. While in the first one the same legend occurs on both the sides, in the two others occur the word

Negamā on one side and their names on the other viz. *Tālimata* and *Dojaka*.

The coins under discussion are not dated, the only means of determining the approximate Chronology being the forms of the letters and the language of the inscriptions. A study of the language and the alphabets used in the legends enables us to determine the approximate chronology of the coins and the rulers and tribes named therein. There is no doubt that the Brāhmī alphabet was in general use throughout the country. This was the alphabet in use among the Ārjunāyanas, the Mālavas, the Nāgas, the Āsvakas, the Sibis, the Uddehikas and the Yaudheyas. Brāhmī accompanied by Kharoshthī on the other side is found among the Audumbaras, Kuṇindas (Amoghabhūti Type), Kulūtas, Vimakas and Vṛishnis, while in the coins of the Rājanya and Mahārāja Janapada and some of the Kuṇinda coins, the two alphabets are not used together in the same coin but some have only Kh. and others Br. The Indian home of Kh. lay in 'eastern Afghanistan and in the north of the Punjab',¹ but it appears side by side with the Br. 'as far as Bhawalpur in S-W, Mathura in the S. and Kāngrā in S-E'. It is said to be derived from the Aramaic script² and was introduced in this country perhaps in the 6th century B.C. when the Punjab was under the Persian Rule. In the third century B.C. the Asokan inscriptions in the North-West region were in Kh. In the meantime the alphabet had been modified and additional sounds to represent the Indian languages had been introduced; but the result was not fully satisfactory. This is evident from the bilingual legends of the Audumbaras viz. *bhuguvusa mahadevusa rajaraṇa*. There is no doubt that the tribes using Kh. and Br. alphabets simultaneously in their coin-legends lived in the border region between the two districts using Br. and Kh. as their regular alphabets. A Chronological clue is afforded by the Kh. legends in the tribal coins. Prof. Rapson points out that in the bilingual coins, the legends became curtailed with the lapse of time.³ At first the Kh. inscription is full but it is gradually curtailed, though the Br. legend remains complete on the other side. In the Kulūta coin of the 1st or 2nd century A.D. the Br. legend—*Rājña Kolū-tasya Virayaśasya* on the obv. is complete, but on the rev. occurs only the title *Raṇa* and the rest of the legend is omitted. A reference to the Kuṇinda coins (Chatrośvara Type) shows that by the 2nd century A.D., Brāhmī asserted itself and by the 3rd century A.D. Kh. fell completely into disuse, though recent

¹ Rapson, E. J.—Catalogue of Coins of the Andhra Dynasty, etc., p. CIV.

² Cambridge History of India, Vol. I, p. 62.

³ JRAS., 1900—Rapson—"The Kulūtas, a people of Northern India'.

discoveries at Taxila clearly prove that 'it was in use there until at least the middle of the 5th century A.D.'¹

At first the language of the inscriptions was Prākṛit or the popular dialect of the time ; of which the chief characteristic was the avoidance of 'harsh consonantal combinations' e.g.—*Ujēniye*, 'of Ujjain' ; *Vatasvaka*, (Āsvakānām Vataḥ) ; *Yodheyana* (Yaudheyānām) ; *Majhimikāya Sibi Janapadasa* ; *Mālavāṇa Jaya*, *Mālavāṇa Jaya* etc. ; *Raṇa Kuṇḍasa Amoghahhatisa Maharajasa* and such others. But by the second century A.D., the legends were generally in classical Sanskrit. The change from Prākṛit to Sanskrit is found among the Mālavas and the Yaudheyas. The *Mālavāṇa Jaya* or its variants *Mālvahṇa Jaya* etc. gave way to *Mālavānām Jaya* or *Yodheyana* is replaced by *Brahmaṇya-devasya drama* or partially sanskritised form *Yudhayaganasya Jaya*. Legends in correct classical Sanskrit is very rare. The tribes at first put the legends in the popular dialect but gradually adopted classical Sanskrit for the purpose. Mr. Bergny gives some Sanskrit forms for the old Prākṛit ones, found on the coins. But the attempt seems to be an intellectual gymnastics, for it is sure that the classical forms were never in use and the literary language was later than the various forms of Prākṛit used in the legends of the coins. But the linguistic changes have some chronological value and are an additional help in the determination of chronological sequence of the coins under discussion.

THE SYMBOLS.

Prof. Rapson points out that in ancient Indian Numismatics, there is no permanent distinction between Types and Symbols. 'In regard both to their origin and their use they probably had much in common, and the terms are often applied to the same designs according to the relative position of predominance or insignificance which they seem to occupy on a coin'.² The symbols which generally occurred in the punch-marked coins are found repeated in the later coins ; and one of them occupies a prominent place and is taken as the Type ; the others are regarded as symbols.

It is true that 'in their essence they are heraldic',³ but their origin is generally shrouded in mystery. We have two words *Aṅka* and *Lakṣhaṇa* associated with Saṃghas in Pāṇini. Jayaswal takes the *Lakṣhaṇa* to be the *Lāñchhana* or 'heraldic crest of later Sanskrit', and as a result of his discussion, he takes the *lakṣhaṇa* to be the 'royal' or 'state' mark, and the *aṅka* 'the individual mark' of a prince, and may mean even the legend or

¹ *Cambridge History of India*, Vol. I, p. 657.

² Rapson E. J.—*The Catalogue of Coins of the Andhra Dynasty*, etc., p. CLXXV.

³ Macdonald, G.—*The Evolution of Coinage*, p. 76.

the motto adopted by a ruler'.¹ The *lakshana* is therefore to be taken as the State Symbol and as it occupied the prominent place—the 'Type, while the *aṅka* which varied with the heads of the State, was the individual mark of the ruler, and consequently occupied a subordinate position and may be denominated a 'Symbol'. There is no reason to take the legend as the *Aṅka*, though sometimes, it might take the place of a Symbol and serve its purpose. The main distinction seems to be that *lakshana* is *national* and *aṅka* *personal* in significance.

In the earlier stage when the punch-marked coins were in circulation, the symbols impressed upon them had various significance. Mr. Walsh after a detailed discussion about the punch-marked coins discovered at Patna and Ghoroghat formulates his opinion as follows 'It may be suggested, to account for a constant group of marks, that one mark may represent the state, one the reigning king, one the place where the coin was struck, and perhaps one a religious mark recognising the presiding deity; also the master of the mint may have had his mark, which would fix his responsibility for the coin, and the additional varying marks may have been those of the *Saṅghas*, village communities, in which the coin was current, affixed at the time the *rupiya* or the local tax on it was levied on its admission to circulation in that jurisdiction. And the various and unsystematic punches on the reverse would appear to have been the marks of private shroffs and moneyers through whose hands the coin passed in the course of circulation'.² If we had only a clue to the significance of these symbols, we would have been in a position not only to identify the coins and their provenance but also the rulers to whom they are to be ascribed. On occasions, however, in spite of the obscurity about the origin and significance of the coin-symbols, it is possible to determine 'whether their use was local, dynastic or personal—that is to say, whether they were intended to denote some particular locality, some particular family of rulers or some particular ruler'.³

The significance of all the symbols used, cannot be determined in the present state of our knowledge, and it is doubtful whether the past will yield up the result so much sought after. But these symbols are of great importance to us 'as authoritative records of the symbolism—religious, mythological and astronomical current throughout India for many centuries'.⁴ The number as enumerated by Mr. Theobald was more than three hundred and new discoveries have increased it appreciably. So the total is about 400, though one and the same symbol

¹ J. HP. I., pp. 43 and 44.

² Walsh, E. H. C.—Cent Sup. JRAS., 1924, p. 184.

³ Rapson, E. J.—The Catalogue of Coins of the Andhra Dynasty, p. CLXV.

⁴ Smith, V. A.—Catalogue of Coins in the Indian Museum, p. 131.

might have been represented in different ways in the various coins.

Theobald classified the symbols under six heads¹: (I) human figure; (II) implements, arms and works of men, including the *stūpa* or *chaitya*, bow and arrow, etc. (III) animals; (IV) trees, branches and fruit; (V) symbols connected with solar, planetary or Sivite Worship; (VI) miscellaneous and unknown'. This classification is however superficial and does not take into account the import or real significance of the devices employed. They were the *aṅkas* or emblems of the different states or tribes, but the main point for determination is the reason that led to the adoption of a certain device by a particular people. It may be possible in the case of some of the states, but in the majority of cases our information is not complete. The Uduṃbara tree in the coins of the Audumbaras is a 'Canting Badge' of the tribe concerned (i.e. a punning allusion to the name of the tribe), the 'Warrior' in the Yaudheya coins represents military prowess, Brahmanyadeva in others was evidently their national God, like Athena in Athens; the Bull or Elephant signifies power, the trident or umbrella denotes empire, or royal dignity, the Vajra or thunderbolt and Spear stood for 'armed might', and so on. To unravel the mystery, where it is possible, requires a reference to ancient architecture, sculpture and ancient records on stone or copper i.e. epigraphic materials.

The 'canting badges' were very common. This practice prevailed to some extent in the West. Cunningham gives a number of examples in India but many more may be pointed out. The punning allusions may lie to the (a) state or tribe, (b) the name of the King or ruling chief, or (c) private individuals like mint-masters: (a) a calf (Sk. Vatsa) by the Vatsas; an armed soldier (Sk. Yoddhā) by the Yaudheyas, Uduṃbara tree by the Audumbaras; a snake (Sk. Ahi) by Ahicchatra etc.; (b) among the Kings of Pañchāla this practice was very popular e.g. the God Agni, a male figure with five-rayed head in the coins of Agnimitra, the Sun in the coins of Bhānumitra (Sk. Bhānu, the Sun), the image of God Indra in the coins of Indramitra or the constellation Phalguni in the coins of Phalgunimitra; (c) 'the Sun' for Sūryadās; a 'Snake' for Nāga Sen; and an 'Elephant' for Gaj Sinh. Bir Deo might have had a 'soldier', Gopāl a Bull, and Khajur Varma a 'Palm' tree (Khajur)². Such examples can be easily multiplied.

Another class of symbols has to be referred to certain peculiar features of the land to which the coins belonged i.e. a certain Hill, River or Lake. The so-called *Chaitya* is nothing but the *Hill Symbol* and the system of representation of a Hill by a number of semi-circles, or circular balls, arranged in rows

¹ *Ibid.*

² Cunningham, Sir A.—Coins of Ancient India, pp. 56–58

above one another and tapering to a point is also found outside India, for example, in Crete.¹ We are indebted to Dr. Bhandarkar for this identification. Naturally the treatment varied in the case of the different tribes or states. Each had a variety of this symbol which had an intimate connection with the locality which could consequently be easily identified. It may be that the Hill that appeared in the coins was perhaps the chief characteristic of the locality, or specially connected with the national life of the people concerned. The Áśvakas had two Hill symbols in their coins, represented in two different ways, and therefore may be supposed to stand for two Hills which were situated in their territory, or recognised as sacred by them. One Hill has been characterised as a pile of Balls—10 Balls arranged in four rows, one row above the other, the number of balls diminishing by one. The other Hill symbol is of three semi-circles, one above the other two, the whole surmounted by a crescent. The various forms that this symbol took may be seen in the Ghoroghat coins.² A curved line is also found on many coins. But it is difficult to identify it correctly in all cases. The zigzag line may stand for a river or a snake, and sometimes it may serve merely an ornamental purpose. Identification is possible, specially when it occurs with a Hill Symbol. In that case, the Hill and the River are the special local features. The zigzag line in the Áśvaka coins surely stands for a river, but it is evident that the Audumbaras and the Kunindas used this device merely for ornamental purposes. In the majority of the cases, the symbol stands for a river on which perhaps the capital stood, or which was deemed sacred by the people, or happened to be the most important means of communication. In some of the coins, the river is represented by two curved lines with fish between.

Another class of symbols refers to the majesty of the State. The chief example is the Three-Umbrellas³ symbol in which the three Umbrellas are bound together in the middle. The Umbrella (*chhatra*) is always an insignia of royalty and signified the majesty of the state. Another symbol which is generally identified with the Sun is really the *Chakra* (discus),⁴ and stands to signify the authority of the state. The national Standards also figure in the coins. The Audumbaras appear to be very fond of their tribal insignia and three different varieties are employed by them. In their Viśvāmitra type coins, occurs their national standard—a trident battle-axe i.e. a Trisūla and Axe combined. In the Elephant : Temple type there are two

¹ Cotterill—Ancient Greece (Earth Goddess and Lions from Crete), p. 50.

² *The Journal of the Bihar and Orissa Research Society*, Dec., 1919, pl. III, Nos. 3-3c.

³ *Ibid.*, Nos. 1-1e.

⁴ *Ibid.*, No. 2.

pillars on the two sides of the temple, the left one has a Swastika on it, and the right one is surmounted by what appears to be a wheel with 'pendant garlands'. The association of these two symbols with a temple, stamp them with a religious character, and they were perhaps looked upon as objects of veneration. The Yaudheyas had also their national standard figuring in their Bull : Elephant type coins.

Hinduism declares 'the ultimate truth to be unknowable and undefinable' and endeavours to approach reality by the use of 'suggestive type or symbol'.¹ Consequently Hinduism makes much use of symbolism. The most numerous section of coin-symbols has some kind of religious significance. The symbols stand for (I) national deities or patron saints, (II) their vehicles (Vāhanas)—birds or animals, (III) their special weapons, or (IV) objects or trees specially sacred to them. The Vāhanas are the symbols of the presence and power of the Gods e.g. Hamsa or goose of Brahmā, Makara of Varuṇa, Garuḍa of Viṣṇu, the peacock of Kārttikeya, the deer of Vāyu, the elephant Airāvata of Indra, the buffalo and the dogs of Yama, the Monkey of Hanumān and the Bull of Śiva. The Trīśūla is sacred to Śiva, the emblem of his authority, and the crescent on his head stands for his sovereign power, the *chakra*, *gadā* (club) and the *conch-shell* are sacred to Viṣṇu, and *Vajra* or Thunderbolt to Indra and so on. The Tulasi tree is sacred to Viṣṇu, Bael and Dhuturā flower to Śiva and lotus to Lakṣmī and Sarasvatī.²

The animals play a very important part in the Vedic Mythology and religious ideas. The horse draws the cars of the Gods in the Rīgveda and is regarded as an object of worship. The cow assuredly occupies a prominent position in Vedic Mythology and is regarded as sacred in the Rīgveda and is referred to as *aghnyā* 'not to be slain'. The goat draws the car of Pūshan, the ass of the Asvins, and the other animals referred to, are the dogs of Yama and the monkey Vrishakapi, the favourite of Indra. Prajāpati assumed the form of a boar in the Yajurveda and the tortoise came to have a semi-divine position in later Vedas. Ahi, the serpent is the form taken by the demon-Vitra—the enemy of Indra. Snake therefore stands for evil power. Inanimate objects were also deified and treated as deities in the Vedas'. Mountains along with rivers and plants are frequently invoked as gods. Large trees-Vanaspati or lords of the forest are also addressed as gods, the sacrificial implements, the most important of which is the sacrificial post, the weapons like bow, quiver, arrows etc. are deified.³ The wheel or *chakra* represents the Sun and is the weapon of one of the solar Gods-Viṣṇu.

¹ *Encyclopædia of Religion and Ethics*, Vol. XII, p. 141 (Symbolism).

² *Ibid.*, pp. 42 and 43.

³ *Ibid.*, (Vedic Religion), p. 609.

Plant forms are portrayed in the seals from Mahenjodaro and Harappā, and two of them the Pipal and Babul tree have been identified.¹ The tree cult was very common in ancient India. 'The sacred tree signified universally in primitive ages the presence of the deity'. Different gods came to be associated with different trees. Each Buddha had his own tree; Gautama attained enlightenment under the Pipal tree which is sacred to him. That the tree symbols in ancient Indian coins had a religious significance is attested to by the railing which is always put around, and marks it off as a holy ground, and the tree as an object of special regard. The identification of trees represented in Indian coins is no doubt difficult but it is sure that they were connected with the religious belief of the people concerned. It is to be marked that the practice of putting in railings around a sacred object was common in India e.g. the stūpas, sacred places and trees are always enclosed in architecture and sculpture.

Certain objects are looked upon as specially auspicious in character and they find a place in the coins. These are generally linear and whatever might be the origin, they became so intimately connected with the national life that these symbols are found in works of architecture and sculpture as well as in coins; and were used at the time of religious festivals and on such happy occasions as marriage, birth of a son and so on. The symbols like Swastika, Nandipada and others are very common on coins, in works of sculpture etc. from high antiquity. The circle, the square, the triangle, the dot or dots arranged in various ways, and the geometrical patterns had surely, certain significance; and for their interpretation, we have to take the help of the esoteric side of religion, e.g. a point or dot is the geometric symbolism of God, the Absolute and Unknowable; the equilateral triangle is 'the symbol of God manifested in the cosmos'; the spiral is 'the geometric symbol of evolutionary force' and similar interpretations may be found in the case of many such geometrical or linear symbols. (Havell's—*The Ideals of Indian Art*).

Of the linear symbols, the Swastika is the best known and is even now recognised as an auspicious sign. We find it in the seals discovered in the prehistoric sites of the Indus Valley civilization.² It is found in use in many parts of the ancient world e.g. in Crete, Troy, Susa etc. but not in Babylon or Egypt. It is undoubtedly a solar symbol; and of the various theories that have been propounded to explain its origin, the interpretation of Mr. Havell seems to be the most convincing. The Swastika represents the movement of the sun round the earth; and the earth owes its fertility to its beneficent powers. Man ultimately

¹ *The Indian Historical Quarterly*, March, 1932.

Mohenjo-daro and Indus Valley Civilization, pp. 133, 140.

² *Ibid.*, p. 130.

derives his happiness and prosperity to the visible daily passage of the sun through the heavens. The arms of the Swastika are sometimes represented curved, but the ordinary and perhaps the later practice, was to have straight lines as arms, going round from left to right; and this direction was in use in later times. The opposite form from right to left, was looked upon as inauspicious. But at Mahenjodaro, no such feeling seems to have existed. This solar emblem of high antiquity proves the tenaciousness of human belief; and it was in common use in architecture (in town planning), in sculpture, in coinage and in religious festivities. In short it entwines itself with the spiritual and artistic life of the people. Lastly we have a number of symbols which were accepted as *Aṅkas* or *Lakṣaṇas* by the states, tribes or individuals, for no particular reason, except pure fancy. These had no special significance but were taken haphazard as heraldic devices. It is however very difficult to determine whether some of them had totemistic origin. Such symbols might be (a) trees, animals or any other objects or (b) astronomical symbols like the Sun, the Moon, the Crescent or the five-pointed Star. Sun-worship was prevalent from very early times. In the Vedas, *Sūrya* is worshipped under many names and forms, and the most sacred verse of the *Gāyatrī* is an invocation to the Sun-God. The three aspects of the sun are the rising, culminating and setting; and this triple aspect is represented by the epithet *tripād*, three-footed and *trivikrama* or three-stepping. The last title came to be appropriated to *Vishṇu*—the sun as the all-pervader who in three strides traverses the three worlds—earth, heaven and hell.¹ In the coins, the sun is represented with spreading rays—the rising sun; and is a peculiarly auspicious object, the giver of all prosperity and life. The radiate sun and other solar emblems occur in the earliest coinage and also in those of the *Mālavas*. In one case the rays of the solar emblem are bent.

The moon as a crescent figures in the coins of the *Mahārāja Janapada* and the *Yaudheyas* and also in the punch-marked coins. Though there was no worship of the moon in India, yet she is recognised as an object of adoration. In the Vedas, *Soma* is identified with the moon; and its waning is said to be due to the drinking up of the nectar (*amṛita*) by the gods. *Siva* is *chandraśekhara* 'with the moon in his crest', and the Lunar Dynasty claimed descent from the moon. So we can expect the symbol of the crescent in the coins of the *Śaivas* or members of the Lunar Dynasty.

The stars and constellations are recognised by the Hindus either as beneficent or malevolent. The anthropomorphic representation of the *Nakshatra* or constellation *Phalguni* is

¹ *Encyclopædia of Religion and Ethics*, Vol. XII, p. 83—Sun, Moon and Stars (Hindu).

found in the coins of Phalgunimitra of Pañchāla and the stars figure in the coins with five tapering lines representing the rays.

The number of symbols met with in the tribal coins is more than forty. The animals that figure as such are the Bull, Elephant, Lion and Snake. A Bull occupies the rev. of some of the Rājanya, Nāga and Mālava coins. The Mālava Bull is generally recumbent, while in the case of the Rājanyas and the Nāgas, it is humped. The position is so prominent in these cases that the Bull may be accepted as a Type on the rev. of these coins.

The Elephant is found on the rev. of the Mālava coins and the Lion also occurs in the same position among the Mālavas and Rājanyas. The five-hooded snake has been identified in the coins of the Uddehikas. The peacock of the fantail variety, is common among the Mālavas. The Bird on the obv. of the 'Warrior' type coins of the Yaudheyas has been identified as a cock, and it really appears to be a peacock—the Vehicle or Vāhana of their national god Kārttikeya.

The Tree-in-Railing was a very common symbol and is found not only in the punch-marked coins but also in the die-struck coins of the Kuṇindas, Audumbaras, Yaudheyas, Mālavas and others. The Kuṇinda tree seems to be a pine tree and the representation is conventional—the branches are arranged in three or four rows, and sometimes the leaves are represented by lines looking downwards. The tree in Audumbara coin is surely of the Udumbara variety, though they are differently represented in the two types—the Viśvāmitra and the Elephant : Temple Types.

In the Sibi coin, it rises from a circle while the Uddehikas had the Tree-in-Railing in the horizontal position. The same symbol occurs in one class of the Rājanya coins and is rather common among the Mālavas. The Yaudheyas had the Tree-in-Railing conventionally represented in the Brahmanyadeva group and it may be a deodar.

The flower under the head of the Bull in the Bull : Elephant Type coins of the Audumbaras has been identified as a lotus flower ; it however appears to be a *chakra* or discus and is perhaps a countermark. But among the Mālavas, the lotus flower is sometimes open and is conventionally represented on occasions. It is in some of the Mālava coins that pinnate palm leaf appears side by side with the legend. A symbol which is very common in ancient Indian coins is the so-called *Chaitya* which has been correctly identified by Prof. Bhandarkar to be a Hill Symbol and is represented by a number of balls or crescents arranged in rows above one another and tapering to a point. Naturally the treatment varied in the case of the different tribes. Each had a variety of this symbol which had an intimate connection with the locality and made identification possible. The Hill

that appeared in the coin was perhaps the chief characteristic of the locality or intimately connected with the national life of the tribe or people. The *Āśvakas* had two Hill symbols in their coins, represented in two different ways and therefore these may be supposed to stand for two Hills which were situated in their territory or recognised as sacred by them. One Hill has been characterised as a pile of Balls—10 balls arranged in 4 rows, one row above the other, the number of balls diminishing by one. The other Hill symbol is of three semi-circles, one over the other two, the whole surmounted by a crescent. In the *Kulūta* coin the Hill symbol is composed of ten semicircles or arches surmounted by an elaborate *Nandipada*: the treatment is rather out of the ordinary. The *Kuṇindas* had a six-arched Hill Symbol with an umbrella above, the uppermost arch is rather elongated. The *Yaudheyas* had a similar representation of the Hill in their coins. The *Sibi* Hill is surmounted by a *Nandipada* and the *Mālavas* had a Hill of three arches (No. 11—Smith) like the *Āśvakas*.

The zigzag line occurs in the coins of the *Āśvakas*, the *Audumbaras*, *Kuṇindas*, *Sibis*, *Mālavas* and the *Yaudheyas*. But there is a great difficulty in identifying this symbol. It may stand for a river or a snake, and sometimes it may serve merely an ornamental purpose. The identification is however possible specially when it occurs with a Hill symbol. In that case the Hill and the River are the special local features. The zigzag line in the *Āśvaka* coins surely, stands for a river and similar is the case with the *Sibi* coin. It is evident that the *Audumbaras* and the *Kuṇindas* used this device merely for ornamental purposes. The *Mālavas* and the *Yaudheyas* had the zigzag line in their coins but it is doubtful whether it represents a snake or a river, though Smith identifies some of them as snakes in the *Mālava* coins. The wavy lines in the *Āśvaka* coin (No. 9 Cunningham, Pl. II) have been identified as vine branches by Prof. Rapson and the identification may be correct.

A squatting male figure with knees raised is found as a symbol in a *Mālava* coin (No. 104—Smith). What it stands for cannot be determined. But it is sure that the female figure in the *Kuṇinda* coins (Stag Type) is that of a goddess or the patron deity of the tribe. The figure stands on the right of the stag, has the left hand on hip and the right hand holds up a lotus stalk with a full blown lotus. (Smith pl. XX, No. 11). In some of the specimens the full-blown lotus is also under the feet of the female figure (Cunningham, Pl. V, figs. 1 and 2). She may therefore be *Lakshmī*, the goddess of prosperity and the goddess is also found in the coins of *Avantī*, *Ayodhyā*, *Eraṇ* and *Kauśāmbī* associated with lotus.

The principal weapons that figure as symbols are the *Trīśūla*, *Chakra*, and the *Vajra*. *Trīśūla* is the special weapon of *Śiva* and is found in *Vimaka* and *Audumbara* coins. The *Vimaka*

trident is of the ordinary shape but in the Audumbara coin the trident is highly elaborate and is perhaps the figure of their standard. The chakra is the special weapon of Vishnu. It figures as a Type in the Vrishni coin and is used as a symbol by the Vimakas, and the Yaudheyas in their earlier coins. (Cunningham, Pl. VI, fig. 5, obv.). The Vajra is the special weapon of Indra, an important member of the Hindu pantheon and in the Purāṇic period recognised as the king of the gods. It is found in the coins of the Mahārāja Janapada. It has great similarity with the representation of the thunderbolt in the coins of Nahapāna (Nos. 243, 244 etc.—Rapson's Catalogue of Coins of the Andhra Dynasty etc.).

Of the astronomical signs the radiate sun and other solar symbols occur in the coins of the Mālavas. In one case the rays of the solar emblem are bent (No. 64—Smith); the crescent was adopted as a symbol by the Mahārāja Janapada and the Yaudheyas. In the Janapada coin, the crescent is placed over the head of the Bull and as the crescent figures on the head of god Śiva and the Bull is his Vehicle or Vāhana, a strong, presumption is raised, as pointed out by Jayaswal, that they were the worshippers of Śiva. The crescent also occurs in one class of Yaudheya coins (Smith—No. 19, p. 182) associated with a stag (or is it a Bull?); on the other side, we have the representation of Brahmanyadeva, a single-headed god, radiate, grasping a spear. Kārttikeya is reputed to be the son of Śiva; so on the rev. we have the crescent and Bull (?) the special insignia of the god Śiva.

The conch-shell is sacred to Vishnu and it is used as a symbol in the coins of the second (*Dvi*) section of the Yaudheyas. The Saṅkha or conch-shell is even now recognised as an auspicious object and is sounded at the time of marriages and other festivities, and also when worshipping the gods. It also figures in the coins of Gautamiputra and Śrī Yajña of the Andhra Dynasty (Rapson, p. 237). A similar auspicious object is a vase with leaves (āmra-pallavas-mangoe leaves) and was the special emblem of the 3rd section (*Tri*) of the Yaudheyas. This symbol is also found among the Kuṇḍas in their Chatreśvara Type coins where it figures above the Stag on the rev. It is used as a Type by the Mālavas and is sometimes placed within a dotted circle or dotted border.


On occasions the national standards of the tribes figure in their coins. The Audumbaras appear to be very fond of their tribal insignia and 3 different varieties are employed by them. The symbol on the rev. of the Viśwāmītra Type coin to the left of the Udumbara tree is a trident battle-axe—a Trisūla and Axe combined. (Smith—Oxford History of India, p. 64 figs. 9 and 10—the two combined is the Audumbara symbol). The same symbol is found on the rev. of a hemi-drachm of Zoilus (Cunningham, Pl. IV, fig. 3). On the rev. of the Audumbara

coin of the Elephant : Temple Type occur two pillars on the two sides of the temple, the left one has a Swastika on it and the right one is surmounted by what appears to be a wheel with 'pendant garlands'. The wheel is taken to be a dharmachakra by Cunningham. The association of these two symbols with a temple stamps them with a religious character and these were perhaps looked upon as objects of veneration. The Yaudheyas had also their national standard figuring in their Bull : Elephant Type coins,—on the obv. ; the Bull standing right faces a curved object rising from a railing. It may be the tribal standard of the Yaudheyas but the identification of the scythe like object on the rev. which the elephant is passing by, is rather difficult. It may be a standard with a hanging streamer but the device is very obscure. (Smith, Pl. XXI, No. 13).

Of the linear symbols the Swastika is the most well-known and it appears in the coins of the Āśvakas, Kulūtas, the Kuṇindas and the Yaudheyas. The ends of the Swastika in the Āśvaka and Kulūta coins are curved, while the Kuṇindas and the Yaudheya had the ordinary representation. These all turn from left to right which was the general practice in historic times in India. The Nandipada also seems to be very popular. It is found not only in the punch-marked coins but appears in its elaborate form in the coins of the Kulūtas, Vṛishnis, Kuṇindas, Audumbaras, the Yaudheyas and Mālavas : and in its so-called Taurine form among the Āśvakas. The Mālava symbol also called the 'Ujjain Symbol' is found in the coins of the Mālava region and naturally appears in the coins of the Mālavas. It is also found in the coins of the Yaudheyas, Uddelikas and others. Perhaps it is a solar symbol and was in extensive use in early times. Two other symbols of doubtful origin may be mentioned here. One is the Triangular-headed Symbol which appears in the coins of the Uddelikas, the Yaudheyas and the Almora branch of the Kuṇindas. It is identified with the 'handled cross'.¹ But it seems to be the *Yūpa*—the sacrificial post, and the projecting lines on the two sides were meant for fastening the animals to be offered. The so-called 'Nāga Symbol'² of Prof. Rapson is found in the Kulūta, Kuṇinda and Yaudheya coins. The 'two S's with a straight line between' is the usual representation of this symbol ; the curved lines are taken to be two hooded snakes but there is no explanation offered for the straight line in the middle. The identification therefore offers insuperable difficulties. In the Kuṇinda coin, this sign is found within the horns of the 'Stag' and on the rev. of the 3rd section of the Yaudheyas and was perhaps used by them

¹ *Ibid.*, Vol. IV, p. 326 (Cross).

² Rapson, E. J.—Catalogue of Coins of the Andhra Dynasty, etc., p CLXXVI.

as a mint-mark . This Symbol of 'three points and three dots' (?) is found only on the rev. of the coins of the 2nd section of the Yaudheyas. While the second section has a 'vase with flowers' and this symbol, the Third Section has the conch-shell and the Nāga Symbol on the rev.; perhaps the Nāga Symbol and 'the three points and three dots' Symbol were both of them the mint-marks of the two sections of the Yaudheya Tribe.

THE TYPES.

The principal types in the tribal coins are the animals, birds, trees, weapons, human figures, the sun, the wheel, the vase, the king's head (?), the figures of deities and patron saints, and the personification of warlike prowess. These types are generally found in the punch-marked coins and are evidently of an early age e.g. the Humped Bull Figures in coins Nos. 9 and 10 (Smith's catalogue, pp. 136-142), Elephant in Nos. 9, 12, 16 etc., Tree in Nos. 18 and 19, the Sun in Nos. 18 and 19 and so on. The animals used as types in the tribal coins are the Humped Bull, the Elephant, the Lion, the Stag and the Camel (?). The Bull like the Elephant is a common emblem in Indian mythology and 'is associated with deities worshipped by various sects'.¹ The figure of the Bull is found either (a) with or (b) without hump, or (c) recumbent and is used as a type by the Audumbaras, Arjunāyanas, Mālavas, Vimakas, Uddehikas, Yaudheyas, Nāgas, Mahārāja and Rājanya Janapadas. The Arjunāyana Bull is a humped one and so is that of the Audumbaras, Vimakas, Uddehikas, Yaudheyas, Rājanya and Mahārāja Janapadas, while the Nāga Bull is recumbent. The Mālavas had all the three types—with or without hump and the recumbent. The Bull is thus the commonest of all the devices and this must be due to the special importance and sanctity attached to this animal. In the Vedic Age, the cow was the medium of exchange, it helped the Aryans in various ways, in the supply of their food and in the cultivation of their land. It was an animal sacred to Śiva and other deities. Naturally it was adopted as a badge by various tribes and figured in the coins as a symbol or a type from a very early time in this country. The elephant, either its whole body or only the forepart, figured as a type among the Arjunāyanas, Audumbaras, Mālavas, Vimakas, Vṛishnis, Uddehikas, and the Yaudheyas. In the Arjunāyana coin the Elephant faces front with head right, trunk raised; only the head appears and this had great resemblance to the obv. type of the Indo-Parthian king Maues. Among the Vṛishnis, the type is composed of Half-Elephant and Half-Lion—a peculiar

¹ *Cambridge History of India*, Vol. I, p. 557.

emblem. In one variety of the Audumbaras, only the front half (viz. the head, trunk and the forelegs) appears as the type.

The Lion as the king of Beasts, naturally figured in the coins and stood for power and might. But it is clear that Lion was confined to only one part of the country, the desert region, and the Lion-type was prevalent only among the Mālavas and the Rājanyas. The Rājanya Lion stands facing a post and in the Mālava coin, the Lion stands left. The Lion however was not so popular as a type among the tribes as the Bull or Elephant. Another animal to serve as a type was the stag. The figure of the stag in the Kuṇinda coins is very clear, and the same type occurs in the coins discovered at Almora which perhaps belong to a branch of the Kuṇindas. The stag is very indistinct in the Yaudheya coins, and among the Mālavas the type has been identified as 'antelope standing'.

The camel as a type is very rare. It is perhaps found only among the Ārjunāyanas who dwelt in the border of the Indian desert i.e. Bharatpur and Alwār States in Rajputana.

The Vrishnis had a peculiar Type—a Half-Elephant and Half-Lion—the foreparts of the two animals are joined together and placed on a pillar which is surrounded by a railing. The representation in Cunningham's book (pl. IV, fig. 15) is very distinct—the trunk of the elephant hangs down while the Lion is open-mouthed and ready to spring. It is a strange way of associating two animals—the Lion and the Elephant in one Type.

The Human Figure was also very popular as a Type. It is found among the Ārjunāyanas, Āśvakas, Audumbaras, Mālavas, Yaudheyas, the Māhārāja and Rājanya Janapadas. In the Āśvaka coins, the Human Figure is robed, with an upraised arm in an attitude of worship; and in the Audumbara coin, the man stands to front with spear in right hand. The Mālava figure is squatted to left, while the Ārjunāyana and Rājanya coins have a standing Human Figure with right hand raised as in the Northern Satrap coins. The Māhārāja Janapada had also a standing figure to front as a Type. The Yaudheyas, in their 'Warrior' Type coins had a Warrior standing, facing front and grasping spear in right hand with left hand on hip—'in the pose of a dignified *tribhanga*'.¹ According to Jayaswal, it represents the type of their citizen soldier and is surely a fit and proper device for a tribe which was noted for its military prowess. The Warrior, therefore, stands emblematical for the martial quality of the great fighters—the Yaudheyas.

The tree as a type or symbol is very common in the ancient coins of India. It is found in the punch-marked as well as die-struck coins. These are generally surrounded by railings and it is evident that they are not of the same species. In ancient

¹ J. HP. I., p. 150.

India and even at present, trees have sanctity attached to them and are specially sacred to certain deities, e.g. Tulasi is sacred to Vishnu and its leaves are offered to this god at the time of worship, and similar is the case with the Bel tree which is sacred to god Śiva. It is not however always possible to identify the trees—which are used as Types and Symbols on the coins. It is however sure that trees of various species were taken as emblems by the different peoples; and on occasions, these were looked upon as sacred. The Audumbaras had a Tree as a Type on the rev. of the Viśvāmitra Type coins. It is a Tree in Railing and is assuredly an Udumbara Tree. So the Udumbara Tree was the 'canting badge' of the Audumbara tribe i.e. the device had a punning allusion to the name of the issuing tribe. This practice was also common in the West—the quince (mêlon) at Melos, the pomegranate (sidê) in Side and so on.¹ The Mālavas and the Rājanya Janapada also used the Tree in Railing device in their coins, but the exact identity of these trees cannot be determined. The Tree in the Mālava coin No. 109 (Smith's catalogue, pl. XXI, 8) is perhaps a pine tree and that in the Rājanya coin (Smith, Pl. XXI, No. 12) may be a Vāṭa tree. In some of the coins of the Mālavas (Smith, Pl. XX, Nos. 19 and 20) a pinnate palm leaf serves as a Type.

The only Bird that was used as a Type in the tribal coins was the fantail peacock. This device was adopted only by the Mālavas. The identification of 'King's-Head' Type on the rev. of some of the Mālava coins is very doubtful; it is most probably a 'fantail peacock' (pl. XX, No. 21—Smith's catalogue).

Weapons like Trīṣūla, Chakra, Bow and Arrow etc. are used as Types or Symbols. Trīṣūla is the Type of the Sibi coins. It was identified as a 'cross' by Cunningham but the portion visible seems to be the upper part of a Trīṣūla. It also occurs as a Symbol in the Viśvāmitra Type and Elephant: Temple Type coins of the Audumbaras. The Type on the rev. of the Vṛishṇi coin (Cunningham, Pl. IV, fig. 15) was taken to be a Dharmachakra by Cunningham, but the correct identification is a *Chakra* or discus. It was an attribute of sovereignty e.g. *Rājachakrabartī* signifies the king as the Wielder of the Discus. Moreover Krishna who is given divine honour by the Hindus belonged to the Vṛishṇi clan and had the discus as his special weapon. So Jayaswal's identification of the wheel-like object seems to be correct, and this is evident from 'the cutting edges and the projecting points on the rim'. The Wheel as a Type occurs in the coins of the Nāgas and the Kulūtas—the device in the Nāga coin has eight spokes, and in the Kulūta coin ten spokes within a circle of dots. It is not clear why this device was adopted by them, and its significance in the present state of our knowledge eludes our grasp. Another device was the vase

which figures as a Type in the Mālava coins and as a Symbol in the Kupinda coins (Cunningham, pl. V, figs. 4 and 5—above the Stag). Smith identifies it with an Indian *lotā*. A vase filled with water is even now looked upon as an auspicious object and is used in ceremonial occasions. So this device is to be classed with Svastika, Nandipada etc. which are associated with a special auspicious occasion.

Lastly we come to another class of Types, viz. figures of gods, their temples and the patron saints. These have a religious significance, and evidently the coins were given these Types in honour of the national god or the patron saint. The Audumbaras put on some of their coins, the figure of Viśvāmitra the Rishi who was evidently their patron saint. The Rishi stands, facing, with right hand raised and left on hip. He wears matted locks, tied in a knot over the head, is scantily clothed perhaps in a piece of skin and has the sacred thread on the shoulder under the right hand (Cunningham, pl. IV, fig. 1). It is not possible to recognise what he has in his right hand but the pose is one of conferring blessings. The Yaudheyas as a military people adopted the figure of Brahmanyadeva or Kārttikeya, the War-god as a Type on one class of their coins. Kārttikeya is the commander-in-chief of the gods in Hindu pantheon and his representation on the coins of the Yaudheyas whose name is derived from *Yuddha* or war is perfectly natural and a fit badge for this tribe. Mr. Jayaswal is therefore correct in taking it to be the figure of a god, and on the face of it Smith's identification Brahmanyadeva as a Yaudheya king is untenable. The god is represented with six heads on some coins and with only one in others. But the representation is very rude, the six heads are arranged in two rows, one above the other; and the god holds spear on the right hand. One of the figures (Cunningham, pl. VI, fig. 12—obv.) has a small bird on its shoulder. Perhaps it is a peacock, the Vāhana or vehicle of this god. The rev. figure of the same coin is undoubtedly a female with six heads—Is it the wife of Kārttikeya or some other goddess? In the single-headed Type (Smith's catalogue—Nos. 18a and 18b, p. 182), the coins are specifically referred to as *Brahmanya-devasya drama* i.e. the coin dedicated to Brahmanyadeva whose other names are Kārttikeya, Śaḍānana and Kumāra—'the presiding deity of Heroism and War', or as put by Mr. Jayaswal 'the figure is their La Liberté'. The Kulūtas in their Chatresvara Type had the figure of their national god on their coins—Śiva standing facing with trident battle-axe in right hand and leopard skin hanging from left arm. The vehicle of Śiva is the bull Nandi and it figures in the coins of the Kushanas (cf. Rapson—I.C., pl. II, No. 12). Śiva and his Bull were adopted as Types by other States also e.g. Pushkalāvati. Another Type which deserves our particular notice is the representation of a building on some of the Audumbara coins. It is a pointed-roofed building

of two or three stories with pillars. Jayaswal wants to identify it with 'their Motehall or some other public building'. The conical shape of the upper part of the building, the *Sikhara* and its disproportionate height tempt us to identify it with a temple in the Indo-Aryan style. It was perhaps the temple of their national god and as such must have been deemed a sacred place of worship. Here the people perhaps repaired for their national festivals, worshipped their god and prayed to him in times of national calamity, or offered thanks on the occasions of military victories. It must have been intimately associated with their national life, before its representation found a place on their coins.

THE PROVENANCE AND DESCRIPTION OF COINS.

I. *Arjunāyanas*, The. As a people they do not appear in Pāṇini, Patañjali or the Mahābhārata.¹ A reference is found for the first time in the Gaṇapāṭha on Pāṇini (IV, 1, 112),² and in the Allahabad Inscription of Samudragupta (c. 380 A.D.), they 'appear among the peoples on the frontiers of the Gupta Empire'.³ The *Arjunāyanas* as a political community are supposed to have come into existence 'about the Śuṅga times (200 B.C.)',⁴ and the name is derived from *Ārjunāyana* the founder, 'one of the family of Arjuna'.⁵ They issued coins as early as the first cent. B.C.⁶ but these are 'extremely rare'.⁷ They were then settled in Rājputanā, perhaps in the 'region lying west of Agra and Mathurā, equivalent, roughly speaking, to the Bhārathpur and Alwār states (J.R.A.S. 1897, p. 886).'⁸ These coins, all in copper, bear the legends—'Ārjunāyanāna', 'coin of the Ārjunāyanas' or '*Arjunayanana jaya*', 'Victory of the Arjunāyanas', in Brāhmī script.⁹ The *Ārjunāyana* coins are closely related in style to the coins of the Northern Satraps, the Yaudheyas, the Audumbaras, the Rājanyas and others.¹⁰ Cunningham hazards the suggestion that *Ajudhan* 'on the bank of the old Satlej river, may still preserve some trace of their name'.¹¹

Type No. 1. The Standing Figure and the Humped Bull¹²
Type (c. 100 B.C.). AE

Obv. : Humped Bull standing to l.

¹ J. HP. I., p. 154.

² *Ibid.*, footnote 1.

³ CHL., I., p. 528.

⁴ J. HP. I., p. 154; Prof. Rapson, however, places them in 4th cent.

B.C. (CHL., I., p. 528).

⁵ J. HP. I., p. 132.

⁶ CHL., I, p. 528 (Rapson).

⁷ S. CCIM., p. 160 (Vol. II).

⁸ *Ibid.*

⁹ J. HP. I., p. 154; S. CCIM., p. 166; C. CAI., p. 89, Pl. VIII, 20; R. IC., Sec. 42, Pl. III, 20; JRAS. (1900) p. 106 (Rapson).

¹⁰ S. CCIM., p. 160; J. HP. I., p. 160.

¹¹ C. CAI., p. 90.

¹² R. IC., Pl. III, 20.

Rev.: Standing Figure with r. hand raised as in the Northern Satrap coins; the legend in Br. in the margin-*Ārjunāyanāna*, and a symbol on l. perhaps a flag or a spear.¹

Type No. 2. The *Elephant and the Bull* Type.² AE Var. a. *Obv.*: A Tree in railing to r.; on the l. an Elephant facing f. with head r. and trunk raised. The head of the elephant has resemblance to that on the obv. of a coin of the Indo-Parthian king Maues.³

Rev.: A 'curved object' rising from a railing; and the Br. legend on the margin—'*Ārjunāyanāna jaya*, (Ārjunāyanānām jayah), 'Victory to the Ārjunāyanas'. The 'curved object' seems to have some resemblance to the flagstaff with 2 symbols dangling from it in a coin of Dhanadeva.⁴ There is an indistinct figure in front of it⁵ which had not been marked by Smith. Perhaps it is a Bull as in Type No. 1, though to r. The *rev.* side of this coin (Smith, Pl. XX, 10) has a great resemblance to the Yaudheya coin,⁶ where a Bull standing r. faces a 'curved object' with a railing. Cunningham takes it to be a 'pillar with pendant garland', and on this analogy the indistinct figure on the Ārjunāyana coin may be a Bull.

Var. b. *Camel (?) and the Bull* Type. AE.

Obv.: A camel (?) to r. facing Tree within railing.

Rev.: Humped Bull to r. facing sacrificial post, within railing; Br. legend *Ārjunāyanāna jaya*, (Victory to the Ārjunāyanas). It has a striking resemblance to the Yaudheya coins. Its *rev.* type is the same as that of the Yaudheya coin in C. CAL., Pl. VI, 3; and 'it is struck in the same manner—slightly incuse'. —JRAS., 1900, p. 107.

II. *Aśvakas*, The.—The coins with the legend *Vaṭasvaka* were found in the neighbourhood of Taxila and Cunningham includes them among the Taxilian coins.⁷ The inscription is in Brāhmī characters and the coins are of the single-die variety. Prof. Rapson is of opinion that the date of these coins 'is probably at least as early as 200 B.C.'⁸ but they may be actually of an earlier date. Bühler explained the legend—*Vaṭasvaka*, 'as a tribal name, equivalent to Sanskrit *Vaṭāśvakāḥ*, meaning the *Aśvaka* tribe of the *Vaṭa* or fig-tree clan'.⁹ The meaning however seems to be far-fetched. The *Aśvakas* have been correctly identified with the Assakēnoi mentioned by Arrian, and they dwelt in the Swāt valley. They 'were the first Indian people to receive the brunt of the invasion'¹⁰ of Alexander the Great. The fighting was of exceptional ferocity and their

¹ Cf. the Yaudheya coin with soldier standing holding spear in right hand on the *rev.*; R. IC., Pl. III, 14; S. CCIM., Pl. XXI, 18, 19 and 20.

² S. CCIM., p. 166, Pl. XX, 10.

³ *Ibid.*, p. 40, Pl. VIII, 4.

⁴ C. CAL., p. 92., Pl. IX, 9 *rev.*

⁵ S. CCIM., Pl. XX, 10 *obv.*

⁶ *Ibid.*, p. 180, Pl. XXI, 13 *obv.*

⁷ C. CAL., Pl. II.

⁸ R. IC., p. 14.

⁹ S. CCIM., p. 147.

¹⁰ CHI., p. 352.

chief town Massaga fell into the hands of the invader after a stout resistance. We have, however, no reference either in the writings of the Greeks or in Sanskrit literature of the *Vata* (fig-tree) clan of the *Aśvakas*. The word *Vata* also means a cowry shell, and we know that cowries were, and even at present are, used as mediums of exchange. So it might mean a 'coin' and this will give a better meaning to the legend *Vatasvaka*,—(*Aśvakānām Vatah*=*Vatāśvakah*, acc. to Pāṇini—II, 2. 31), 'the coin of the *Aśvakas*'. These coins as pointed out by Prof. Rapson are 'connected by identity of type with some of the single-die coins found in the neighbourhood of Taxila'.¹ (Cf. C. CAL., Pl. II, figs. 9, 11 and 14). The symbols are the same but there is no legend; obviously these coins belong to the same tribe, and are of an earlier date. Two of these symbols are very prominent in coins Nos. 9 and 11; and I am disposed to classify them as varieties of the *Aśvaka* coins. A tentative classification of the coins of the *Aśvaka* tribe may be effected by dividing them into two Types of two varieties each.

Type No. 1. Var. a.² AE.

There are two symbols: (a) the so-called pile of 'bales'³ or 'balls'⁴ and above, (b) the so-called *Chaitya*, (both are perhaps the different varieties of the Hill Symbol); to r. a robed human figure with an upraised arm in an attitude of worship with a *nandipada* below; to l. the Br. legend—*Vatasvaka* in characters of 3rd cent. B.C. Var. b.⁵ These coins have only the two common Hill Symbols and the figure of the man is standing between with an upraised hand; there is no legend, nor the *nandipada*.

Type No. 2. Var. a.⁶ AE.

The two prominent *Hill* Symbols, a *Svastika* above, and a zigzag line (river?) below. Var. b.⁷ This variety has the three symbols (the two Hill Symbols and the river Symbol) common with Var. a. but two peculiar symbols are introduced below them. V. Smith only notes that these symbols are 'made of curved lines'⁸ and Prof. Rapson takes them to be 'wavy lines and uncertain designs' and suggests 'vine branches (?)'.⁹

III. *Audumbaras*, The.—The name *Audumbara*, the *Odombœræ* of Ptolemy¹⁰ is derived from the *Udumbara* fig-tree (*Ficus glomerata*).¹¹ They are unknown to the early Pāṇinian literature but are mentioned in the *Rājanya* group in the *Gaṇapāṭha*; and are also referred to in connection with the

¹ R. IC., p. 14.

³ *Ibid.*, p. 61.

⁵ C. CAL., Pl. II, fig. 14.

⁷ *Ibid.*, fig. 9.

⁹ R. IC., Pl. I., 11; C. ASR., XIV, Pl. X, (No. 10).

¹⁰ D. GDAMI., p. 13.

² C. CAL., Pl. II, fig. 17.

⁴ S. CCIM., p. 156, footnote 1.

⁶ *Ibid.*, fig. 11.

⁸ S. CCIM., p. 156 (No. 4).

¹¹ C. CAL., p. 66.

Punjab republics in the Sabhā-Parvan of the Mahā-Bhārata.¹ Varāha Mihira places them in the company of the Kapisthalas, 'while the Vishṇu Purāṇa couples them with the Traigarttas and the Kulindas'.² In the Bṛihat Samhitā, Udumbara is the name of 'the district of Nurpur (or rather Gurudaspur)'.³ The Audumbara coins are 'extremely rare' and are found in the Kāngrā and Hoshyārpur Districts of the Punjab.⁴ Perhaps they dwelt in the country between Kāngrā and Ambāla⁵; and as Pliny locates them in Cutch, so it is evident that one branch of the people must have migrated to that region and their descendants are found there and form 'the modern community of Gujrati Brahmins of the Audumbara caste'.⁶

The Audumbara coins resemble those of the Ārjunāyanas and 'other classes of ancient coins',⁷ and were struck 'in the name of the community and the king'.⁸ These coins probably date from the first century B.C. and have legends in Kh. and Br. Jayaswal is of opinion that 'the Kharoshthī script indicates that about 100 B.C. they came under the influence of the Satraps like their neighbours of the Punjab, and were finally absorbed'.⁹ There is a great similarity in style between the Audumbara coins and 'the hemidrachms of Greek prince Apollodotus and are found together with them'.¹⁰ Prof. Rapson also points out that 'a similarity in style is observable' between 'Viśvāmitra Type' and one of Azilises.¹¹

Type No. 1. The *Viśvāmitra* Type.¹² AR.

Obv.: The standing figure of *Viśvāmitra*, the Rishi with r. hand raised and the l. resting on the waist; the Kh. legend—*Mahadevasa raño Dharaghosasa Odumbarisa*—across field,—*Viśpamitra*, 'Of His Exalted Majesty'¹³ Dharaghosha of the Audumbaras', or of Dharaghosha, the worshipper of Mahādeva, i.e. Māhādeva, of the Audumbaras. Jayaswal takes 'Mahādeva' (or Māhādeva ?) to mean 'His Exalted Majesty' but it appears that the word refers to their national god. *Viśvāmitra* was their patron saint.

Rev.: The same legend in Br.; the Udumbara (fig tree) on the r. within a railing, and the trident battle-axe on l. The tree was the lakṣhaṇa and the trident, 'the figure of their standard'.¹⁴

Type No. 2. The *Elephant and the Temple* Type. AE.

¹ J. HP. I., p. 160.

² D. GDAML., p. 13.

³ J. HP. I., p. 160.

⁴ S. CCIM., p. 161.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ C. CAL., p. 67, Pl. IV, fig. 1; for other specimens see R. IC., Pl. III, 8; and CHI., p. 539, Pl. V, 14.

⁸ J. HP. I., p. 161.

⁹ *Ibid.*, and pp. 42 and 43—Lakṣhaṇa is the 'lāṅchhana' or heraldic crest. It is usually 'the figure of an animal or river, town or the like.'

¹⁰ C. CAL., p. 66.

¹¹ S. CCIM., p. 160.

¹² *Ibid.*, p. 161.

¹³ J. HP. I., p. 161.

¹⁴ R. IC., p. 11.

Var. a.¹ *Obv.*: Elephant walking before the Udumbara tree surrounded by a railing and a zigzag line (snake or river ?) beneath ; the Kh. legend incomplete—*Odumbara...*, placed under the wavy line.

Rev.: A pointed-roofed building of two or three stories, with pillars ; a pillar with *Svastika* on it to l., and a shaft surmounted by a wheel (the so-called *Dharma-chakra* of Cunningham) with 'pendant garlands'. The building may be the temple, 'their mote-hall (?) or some other public building',² and the 'shaft with the wheel' the figure of their standard.

Var. b.³ *Obv.*: There are two points of difference with the first variety—the position of the Kh. legend and the figure of the Elephant. In this variety, the legend is found on the r. of the Elephant and not under the zigzag line ; and while in Var. a., the whole body of the Elephant is found, in this Var. b., the head, trunk and the forelegs are only seen. It is evident that the entire body must have been absent in the die, as the Kh. legend *Odumbarisa* is 'found to the right of the Elephant's forepart'.

Rev.: The temple is a three-storied one and slightly different from the first variety. There is a trident (*triśūla*) with banners to r. and the Br. legend on top. These coins have legends both in Br. and Kh. and the complete legends as restored by Mr. Rakhaldas Banerjee are—⁴

Obv.: Kh.—Mahadevasa Raña Dharaghoṣasa Odumbarisa.

Rev.: Br.—Mahadevasa Raña Dharaghoṣasa Odumbarisa.

In the coins of two other kings *Rudradāsa* and *Śivadāsa*, their names spelt as Rudradasa and Śivadasa are introduced without any other change in the legends. The Br. and Kh. letters 'belong to the first century B.C. and one peculiarity is that the long vowels ā, ū, ai and au are avoided both in Br. and Kh'.

Type No. 3.—The *Elephant and the Bull* Type.⁵ AR.

Obv.: Elephant with upraised trunk moving to l.,⁶ towards trident battle-axe ; Br. legend.

Rev.: Humped Bull to r., flower (lotus flower ?) under head ; Kh. legend. The legends are—⁷

Obv.: Br.—bh (a) gavatomahādevasarājarājasa.

Rev.: Kh.—bhuguvusamahadevusarajaraña.

The legend on these coins had been interpreted to refer to a king named Mahādeva. But this cannot be taken to be certain.

¹ C. CAL., p. 68, Pl. IV, fig. 2.

² J. HP. I., p. 161.

³ J.A.S.B., 1914 ; (Numis. Sup., No. XXIII, 247–250).

⁴ *Ibid.*, p. 249.

⁵ C. CAL., p. 68, Pl. IV., figs. 5 and 6.

⁶ *Ibid.*, Pl. IV, fig. 5.

⁷ JRAS., 1900 (A. V. Bergny), p. 411.

The word *bhagavata* is generally applicable to gods,¹ and the title 'rājarāja', 'the king of kings' is more applicable to a god than to the king of a small principality. Moreover 'Mahadevasa' in the coins of Dharaghosha might refer to the national god, of whom Dharaghosha was the worshipper. So I would rather take this legend as applicable to god Mahādeva and the coin seems to be dedicated to him like the Chatreśvara Type² of Kuṇinda coins. The legend therefore may be interpreted as follows—'In the name of the Almighty Mahādeva, the king of kings'.

Type No. 4. *Elephant and Man Type*. AE.

Var. a.³ *Obv.*: Elephant with upraised trunk moving to l., with⁴ or without⁵ a man on its back; the legend either in Br. or Kh.

Rev.: Man standing to f. with spear in r. hand with or without zig-zag line and the legend in Kh.

(a) (C. CAL., Pl. IV, 7).

Br.-...ñojamitasa.

Kh.-raña (or ño) ajamitrassa—'of king Ajamitra'.

(b) (C. CAL., Pl. IV, 9).

Bh.: r (.) mahim (.) ta...

Kh.:...ñamahimitrassa—'of king Mahāmītra'.⁶

Jayaswal interprets the word Rājna or 'Rājanya'—(Cunningham) as meaning a president, the executive head, or an elected ruler of a tribe.⁷

Var. b.⁸ *Obv.*: Male Figure to f., with spear in r. hand; the zig-zag line (snake or river?) to r.

Rev.: Figure on Elephant to l.; Kh. legend—*Maharajasa Dhara* (?),—the reading is very uncertain.

Type No. 5. *The Elephant and Three Symbols*.⁹ AE.

Obv.: Elephant to l.; Kh. legend.

Rev.: The Three symbols—one is a *Tree*, the other—*Nandipada* but the third cannot be recognised; the snake (zig-zag line) referred to by Cunningham seems to be a part of the *Nandipada* Symbol; the legend in Br.—the same legend is found on both the sides—

Rev.: Br.—(ra) ñobhānumitra(sa).

Obv.: Kh.-rañabhāna (or nu) mitrasa, 'of King Bhānumitra'.

¹ (a) Kuṇinda coins—Chatreśvara Type—*Bhāgavata Chatreśvara Mahātmanah* (S. CCIM., p. 170).

(b) Yaudheya coins—Brahmaṇyadeva Type—*Bhāgavata Svāmīno Brahmaṇyadevasya*. (S. CCIM., p. 181).

² R. IC., Pl. III, 10.

³ C. CAL., p. 69, Pl. IV, figs. 7-9.

⁴ *Ibid.*, Pl. IV, fig. 9.

⁵ *Ibid.*, Pl. IV, figs. 7 and 8.

⁶ JRAS., 1900, p. 414 (A. V. Bergny).

⁷ 29 J. HP. I., pp. 42 and 160.

⁸ C. CAL., p. 69, Pl. IV, fig. 10.

⁹ *Ibid.*, fig. 12.

Type No. 6.—The *Sun and the Three Symbols*.¹ AE.

Obv. : The Three Symbols as on the rev. of Type No. 5 ;
Br. legend—*Bhānumitrāsa*, 'Of Bhānumitra'.

Rev. : The rayed disc of the sun above a railing ; the figure of the sun refers to the name of the king Bhānu (the sun). This coin is assuredly a Pañchāla coin and perhaps the Type No. 5 also should be assigned to that locality.

Cunningham included the coins of Rudravarman, Ajamitra, Mahimitra, Bhānumitra, Virayaśas and Vṛishṇi among those of the Audumbaras. But Mr. R. D. Banerjee does not accept this view on the ground that we have not the name 'Odumbara' coupled with these names, while in the case of Dharaghosha, Sivadāsa and Rudradāsa 'we invariably find that the name of the tribe is associated in the legend with that of the king. Consequently the attribution of coins which do not bear the name of the tribe to the Audumbaras, must be very doubtful'.² But there is no reason that the same practice should be adhered to throughout the ages ; a change in the constitution of the Audumbaras might lead to the introduction of a new form of legends. So long as great importance was attached to the tribal character of the constitution, the name of the tribe was coupled in the coins with the names of their rulers ; but if later on with a change in the constitution and the augmentation of their authority, the rulers gave only their own names and omitted that of the tribe, there is nothing improbable in it. We cannot, therefore, accept Mr. Banerjee's statement in full. Some of the coins e.g., those of the Vṛishṇis, Mahārāja Janapada, Virayaśas, and perhaps of Bhānumitra had been wrongly attributed by Cunningham to the Audumbaras. But the resemblance in style leads me to attribute the coins of Mahimitra and Ajamitra to the Audumbaras ; and it is almost certain that they were the rulers of this tribe, of which the national god was Mahādeva or Siva. It is also probable that the coins without the tribal name were of a later date than those of Dharaghosha, Rudradāsa and Sivadāsa who preceded them.

IV. *Kulūtas*, The.—They were 'the eastern neighbours of the Udumbaras' and lived in 'the Kulū valley of the Kāngrā district'.³ Their coins have been assigned by Prof. Rapson to the first or second century A.D. They usually used both Br. and Kh. in the coin legends, as they like the Udumbaras and the Kuṇindas 'lived on the border between the regions in which the two ancient alphabets Brāhmī and Kharoshthī prevailed'.⁴

They are mentioned in the *Mahā-Bhārata*, the *Bṛihat Samhitā* and other Sanskrit works, as well as in the inscriptions.⁵

¹ *Ibid.*, fig. 13.

² JASB., Vol. X, No. 6, 1914. (Numis. Supp., No. XXIII, p. 248).

³ Prof. Rapson in CHI., I., p. 529.

⁴ *Ibid.*

⁵ JRAS., 1900—Rapson, *Notes on Indian Coins and Seals* III—The Kulūtas, a people of Northern India.

Their country was visited by Hiouen Thsang and they are sometimes referred to as *Mlecchas* in the Sanskrit literature, and this perhaps means that they were foreigners. But it is evident from their coins that they had by this time adopted Indian names. The *obv.* type has great resemblance with Vṛishṇi coins. (C. CAI., Pl. IV, fig. 15).

Type—The *Wheel Type*. AE.

Obv.: The Wheel surrounded by a circle of dots; Br. legend—*Rājña Kolūtasya Virayaśasya*’, (coin) of King Virayaśa, the Kolūta.¹

Rev.: The Hill symbol (the so-called *Chaitya*) with the *Nandipada* above, *Svastika* on l. and another symbol ‘Two S’s with a line between’ on the r.—the Kh. legend gives only the word *Raṇa*. The Br. letters are of the 1st or 2nd century A.D. and this conclusion is strengthened by the curtailment of the Kh. legend. As pointed out by Prof. Rapson in the bilateral coin legends ‘the importance of the Kh. alphabet tends to diminish as time goes on’. In the earliest known coins of this class which are placed in the first century B.C., (in the silver coins of the Kuṇindas and the Audumbaras) the Kh. inscription is full. But in the Kulūta coin only the title *Raṇa* in Kh. is found on the *rev.* This clearly shows that Kh. had lost its importance and was being superseded by Br.

V. *Kuṇindas*, The.—They are the *Kulindrine* of Ptolemy and it is also spelt as *Kaulindas* or *Kaṇindas*. The spelling in the coins is *Kuṇinda* as also in the *Bṛihat Samhitā* of Varāha Mihira, *Kuliṇḍa* in the *Vishṇu Purāṇa* and *Kauliṇḍa* in the *Mārkaṇḍeya Purāṇa*.² These coins are found in large numbers ‘in the country between Ambāla and Shahāranpur’.³ and ‘three of the silver coins were found at Jwālamukhi in Kāngrā associated with the coins of Apollodotos (circ. 150 B.C.)’.⁴ Cunningham identified the Kuṇindas with the *Kunets* or *Kanets* of the Simla Hills.⁵ But Jayaswal rejects this identification and is supported by Sir G. Grierson.⁶ They however ‘inhabited the country of the Sutlej in the Simla Hill States’.⁷ The Udumbaras, the Kulūtas and the Kuṇindas ‘lived on the border between the regions in which the two ancient alphabets, Brāhmī and Kharoshthī prevailed: they accordingly used both of them in their coin legends’.⁸ In most of the coins of the Kuṇindas, both silver and copper, occur the word *Amoghabhūti*, but these coins ‘vary much in execution, and probably extend

¹ C. CAI., p. 70, Pl. IV, fig. 14. Cunningham read ‘*Koputasya*’ or ‘*Koptanasya*’; Rapson suggested ‘*Kopūta*’, ‘the very pure’. But it was Mr. Bergny who first correctly read ‘*Kolūtasya*’. JRAS., (1900), p. 415.

² C. CAI., p. 71; J. HP. I, p. 82, footnote 1.

³ S. CCIM., p. 161.

⁴ J. HP. I., p. 82, footnote 1 and 217.

⁵ CHI, I, p. 529.

⁶ C. CAI., p. 71.

⁷ C. CAI., p. 71.

⁸ *Ibid.*

over a considerable period'.¹ V. Smith takes the word *Amoghabūti* to be the name of a king, and was, therefore, forced to the conclusion that the name of *Amoghabhūti* was continued even long after his death. Jayaswal, however, has pointed a way out of this difficulty. In this opinion, the Kuṇinda coins refer both to the name of the king and the political community. 'Their king, is always mentioned there as *Amoghabhūti*, 'of unfailing prosperity', and the same appellation appears for centuries (150 B.C. to 100 A.C.). This was an official title and not a personal name'.² But we have no corroboration of this statement from other sources which would obviate all our doubts. The legends in the coins are in an old form of Brāhmī and in some of the coins, these are also repeated in Kharoshthī. The coins with both Br. and Kh. legends are supposed to be of an earlier date by Smith.³ The later issues were surely influenced by the copper coins of the Kushana period. But their attribution to the 3rd and 4th century A.D. by Prof. Rapson seems to be too late,⁴ though there is practically no doubt that the Hindu states like the Yaudheyas, the Kuṇindas etc. 'rose in power as the Greek and Kushana supremacies successively declined'.⁵ The *Chatreśvara* Type is surely 'later in date than the 'Stag Type' coins with the name of *Amoghabūti*'.⁶ So the period covered is 150 B.C.⁷ to 200 A.D.⁸

Type No. 1. *The Stag Type* (2nd century B.C.).⁹ AR.

Obv. : Female with l. hand on hip with lotus flower in r. hand ; a stag standing to r. and two symbols, one between the horns of the stag and the other above it, and this is supposed to be a square stūpa surmounted by an umbrella : a mint mark,—a disc surrounded by dots at hindfoot of stag ; the marginal Br. legend—*Amoghabhutasa maharajasa rājña Kuṇḍasa*, (*Amoghabhūtisa mahārājasa rājña Kuṇi (n) dasa*)—'coin of *Amoghabūti Mahārāja, Rājā, the Kuṇinda or of the Kuṇindas*',¹⁰ (or of *Mahārāja of unfailing strength, the king of the Kuṇindas*).¹¹ We also find different symbols in other coins e.g. *svastika*, *nandipada* or two short curved lines ; and *rājña* is sometimes spelt as *rāña*. The so-called *Chaitya* of three arches (the *Hill* symbol) also occasionally occurs.

Rev. : A high so-called six-arched chaitya (the *Hill* Symbol ?) with umbrella (?) in centre ; to r. conventional tree in railing, to l. *svastika* and a triangular-headed symbol—(yūpa ?) and above a *nandipada* ; below a curved line (snake or river ?) which appears to have been put merely for ornamental

¹ S. CCIM., p. 161.

³ S. CCIM., p. 161.

⁵ *Ibid.*

⁷ 150 B.C.—S. CCIM., p. 161 ; 100 B.C.—R. IC., p. 12.

⁸ 100 A.D.—S. CCIM., p. 167 ; 3rd or 4th cent. A.D.—R. IC., p. 12.

⁹ S. CCIM., p. 167.

¹⁰ *Ibid.*

¹¹ J. HP. I., p. 82, footnote 1.

² J. HP. I., p. 82, footnote 1.

⁴ R. IC., p. 12.

⁶ S. CCIM., p. 161.

purposes ; Kh. legend in the margin—*Raṇa Kuṇidasa Amogha-bhatisa* ; below *maharajasa*.¹

AE. or Brass—A. With both Br. and Kh. legends.²

Obv. : Device and legend in Br. as in silver coins but without mint-mark ; legend generally imperfect.

Rev. : Device as in silver coins ; legend in Kh.

B. With Brāhmī Legend only.³

Obv. : Device and legend in Br. as above.

Rev. : Device as above but no legend.

C. With no legend.

Obv. and *Rev.* Device as above.⁴

Type No. 2.—The *Chatreśvara* Type.⁵ AE. (Later than Amoghabūti).

Obv. : Śiva facing with trident battle-axe in r. hand, and leopard skin hanging from l. arm ; Br. legend—*Bhāgavata Chatreśvara Mahātmanah*.⁶ 'Of the Almighty Mahādeva, the lord, i.e. the coin dedicated to god Maheśvara'. Prof. Rapson identifies the skin on the l. arm with that of an antelope but as leopard skin is associated with god Śiva, so Cunningham's suggestion is more acceptable.

Rev. : Stag standing l. in the middle ; conventional Tree in railing and a vase with flowers or leaves above on the r. ; on the l. the 'triangular-headed' symbol, the *Hill* symbol (the so-called six-arched chaitya) with a *nandipada* above and a zigzag line (not a snake) for ornamental purpose l. ; and a symbol within the horns of the stag.

Almora (or Kedārabhūmi).—Three specimens of coins were found near Almora and these are 'different in fabric from every other known Indian coinage'.⁷ The metal used was 'some alloy of silver' and the coins 'are heavier than any other Indian coins'.⁸ Two of these coins bear the names of Śivadatta and Śivapālī(ta) in Br. letters which are taken to be by Prof. Rapson 'of a date between the 1st century B.C. and the 2nd century A.D.'. The *obv.* type has some similarity with that of a few coins of the Pañchālas, and the 'Stag' on the *rev.* has great resemblance to the 'Stag Type' coins of the Kuṇindas. Prof. Rapson attributes these coins to a branch of the Kuṇindas 'whose territories extended further east along the southern slopes of the Himalayas as far as Nepal'.⁹

Type—Legend Śivadatta.¹⁰ AR.

¹ S. CCIM., p. 167 (coin No. 1).

³ *Ibid.*

⁵ *Ibid.*, p. 170 ; R. IC., Pl. III, 10.

⁶ V. Smith writes *mahātmanah* which is clearly a misprint for *Mahātmanah* (*ātmā*) in the sense of God. *Mahātmanah* means 'of Maheśvara' and *Chatreśvara*—the lord. (R. IC., Pl. III, 10).

⁷ R. IC., p. 10.

⁹ CHI., 529 (Prof. Rapson).

² *Ibid.*, p. 168.

⁴ *Ibid.*, 169.

⁸ *Ibid.*

¹⁰ *Ibid.*, p. 539.

Obv. : Two symbols between the posts ; the upper one is the triangular symbol, and the lower one may be a *nandipada*(?).

Rev. : The legend—*Sivadatasa* ; in the margin a *stag* and a *tree* within railing ; in the centre, an uncertain type, may be a symbol or a letter.¹

VI. *Mahārāja Janapada*.—Mahārāja is the name of a state and is referred to ' by Pāṇini in a rule which contemplates a man owing loyalty to it '.² Jayaswal is of opinion that during the Śuṅga period, they had a republican constitution, whatever might have been the system in vogue at the time of Pāṇini. These coins have been found in the Punjab, but the exact locality where this Janapada dwelt cannot be determined. The legends are either in Br. or Kh., and this leads Jayaswal to infer that the original Br. legend was changed into Kh., ' when they passed under the influence of the foreign rulers '.³ But on the analogy of the Kulūta coin and the Stag Type copper coins of the Kuṇindas, the Br. legend might have succeeded the Kh. ; the coins, on this basis, may be dated in the 2nd cent. A.D.

Humped Bull and the Standing Figure Type. AE.

Var. a. *Obv.* : A Humped Bull to l., a crescent over the head and a symbol (*Vajra* ?) over the back.

Rev. : A Standing Male Figure to f. and a Kh. legend around the coin—*Mahārāja Janapadasa*, ' Of the Mahārāja Janapada '.⁴ In Var. b. occurs the same legend in Br. ; ' the Bull with the crescent ' may surely raise a strong presumption that they were Śaiva or the worshippers of Śiva.⁵

VII. *Mālavas*, The.—Alexander, the Great, while marching down the Indus came upon the *Kshudrakas* and the *Mālavas* or as they were spelt by the Greeks the *Oxydrakai* and the *Malloi* respectively.⁶ They had extensive territories and large population. These states had several cities, were very rich and noted for military prowess and had republican constitution, perhaps formed into one League⁷ as suggested by Mr. Jayaswal. Cunningham places the Mālavas near Multan which he identifies with their capital,⁸ or as Jayaswal puts it ' their cities were along the Chenab and their capital was near the Ravi '.⁹ Kautilya however does not mention the Kshudrakas and the Mālavas in his list of martial republics, and it has therefore been inferred that they had already come under the Imperial Rule of the Mauryas.¹⁰ The two tribes reappear in the Śuṅga times but later on the Kshudrakas vanish altogether, perhaps they became

¹ *Ibid.*, Pl. V., fig. 17, p. 539.

² *Ibid.*

³ J. HP. I., p. 159.

⁴ ' The Mālavas of the Punjab and the Kshudrakas are associated in Sanskrit literature '.—CHI., I, p. 375, footnote 1.

⁵ C. AGI., p. 272.

⁶ *Ibid.*, p. 149.

⁷ J. HP. I., p. 159.

⁸ C. CAL., p. 69, Pl. IV, fig. 11.

⁹ J. HP. I., p. 68.

¹⁰ J. HP. I., p. 68.

amalgamated with the Mālavas.¹ In the 2nd century B.C., they are found in their new homes at Karkota Nāgar 'within the territory of Rājā of Uniyāra, a feudatory of Jaypur', 'a distance of twenty-five miles a little east of south from Tonk in Rajputana.'² They migrated *via* Bhātinda in Patiala state 'where they have left traces of their name (in Mālwaī dialect extending from Ferozpora to Bhātinda)'³; and are found fighting with the Uttamabhadras to the west of Ajmer before 58 B.C. They later on occupied the vast territory to the south of Nāgar 'which permanently bears their name'.⁴ There is no doubt that one section of the people remained in North Punjab; and the two Mālava peoples of Prof. Rapson are surely the two branches of the same tribe.⁵ We find them mentioned among the opponents of Samudragupta along with the Yaudheyas, the Madras, the Ārjunāyanas and others. Their subsequent history is lost and they vanish altogether in the later Gupta period. The Mālava coins are generally found in the country 'about Ajmer, Tonk and Chitor'.

V. Smith rightly points out that 'in the vast range of Indian coinages their coins are among the most curious and enigmatical'.⁶ The chronology of the series has not yet been precisely determined. Carlleyle and Cunningham assign them to 250 B.C. to 250 A.D.; Smith and Prof. Rapson are agreed that the initial date is about 150 B.C. but Prof. Rapson pushes them to the 5th century A.D.; Smith however attributes the cessation of this local coinage from Nāgar to 'the extension of the power of Chandragupta II about 380 A.D.'⁷—and he seems right in his estimate. These two great scholars also differ as regards the dates of the various types. Mr. R. O. Douglas⁸ made some suggestions which are very helpful in laying down a few broad principles for classifying the Mālava coins according to chronology. The legends that occur in these coins are—(A) the various forms of the tribal name, (B) and a number of peculiar names of their princes. In class A, we have the following⁹: (a) *Mala*, (b) *Malaya* or *Mālaya*, (c) *Malava* or *Mālava*, (d) *Mālava Jaya*, 'the Mālava Victory', (e) *Mālawanā jaya* and its variants *Malavanā Jaya*, *Mālawanā Jaya* or

¹ *Ibid.*, p. 152.

² S. CCIM., p. 162.

³ J. HP. I, p. 152.

⁴ *Ibid.*

⁵ '..... is it not just possible that there may really have been two peoples: (i) the Mālava of the north represented the Malloi of the Greek writers, by the coins having the inscription Mālavanām Jaya (h), by the Malaya of the Mudrārāksasa, and by the Mo-lo-so (Mo-lo-po) of Hiouen Tshang; and (ii) the better known Mālava of the south called Mo-lo-po by Hiouen Tshang'—JRAS, (1900), p. 542 (Prof. Rapson).

⁶ S. CCIM., p. 161.

⁷ *Ibid.*, p. 162; Numis. Supp., No. 37, p. 43 (ASB., Vol. XIX, No. 6 (New series)).

⁸ Douglas, R. O.—On Some Mālava Coins (Numis. Supp., No. 37).

⁹ S. CCIM.; Douglas—On Some Mālava Coins.

Malavahṇa Jaya etc., 'Victory of the Mālavas', (f) *Mālavā nām*; (g) *Malava gaṇasya*, 'Of the Mālava gaṇa',¹ (h) *Malava Sujaya*, 'the well-conquering Mālava (Douglas)'. The last legend is read only in one coin; Mr. Douglas is however confident that it is not 'ṇa' but 'su'. We however must suspend judgment till the discovery of other similar coins.

Mr. Douglas has correctly shown that *Malaya* or *Mālaya* is the earlier form of *Mālava*²; the Greek form *Malloi* stands for *Malaya* and the correct transliteration for *Malava* would have been *Malluoi*.³ The word '*Mala*' he takes to be the name of a king, the founder of the Mālava tribe. The form *Mālavanā Jaya* is surely of an earlier date than *Mālavānām Jaya*, which may be dated in the 2nd century A.D. Another very important datum can be gleaned from the fact that in some of the coins the legends read from right to left. This clearly shows the influence of the Kharoshthi alphabet and perhaps the Mālavas brought this practice from their early settlements in the 'valleys of the Ravi and the Beas'. These coins with very good reasons can be ascribed to an earlier age. The conclusions based on palæography have to be tested with reference to the form of the legends, the language employed and the way in which the letters are arranged. The adoption of these principles, which are reasonable enough, would necessitate a rearrangement of the different groups of coins in Smith's catalogue. But the most difficult problem is the chronology of the coins which are generally ascribed to the Mālava kings with peculiar names. The relationship of these coins with those that are unmistakably Mālavan is evinced by some of their legends as well as *provenance*. In Smith's catalogue (No. 70), we have a two-line legend, (a) *Malavā*, (b) *Majupa*, both read from right to left. Here *Majupa* is the name of a king and he must be connected with the Mālavas.

Jayaswal suggested⁴ that the coins with the names of kings belong to the power which superseded the Mālavas. But we cannot accept this view. We find that both the series were contemporaneous from the 2nd century B.C. to 2nd century A.D. The coins with the tribal names in Prākṛit have to be assigned to the 2nd century B.C.; so is the case with the coins of Bhapaṃyana, Yama (Maya?) and others who have to be placed in the same period on palæographical grounds.⁵ Again the coins with their legends in classical Sanskrit.—'*Mālavānām Jaya*'—come down to the 2nd century A.D., while V. Smith

¹ J. HP. I., p. 153.

² In the *Mudrārākṣasa*, they are referred to as *Malayas*.

³ Douglas—*On Some Mālava Coins*, pp. 42–47, (Num. Suppl., No. 37).

⁴ J. HP. I., p. 218.

⁵ S. CCIM., 174.

places *Maraja*, *Jāmaka* and others in the 2nd century A.D. and *Paya* in about 300 A.D. Why two series of coins were simultaneously issued remains an enigma. Only plausible suggestions can be made to explain this state of things. We find in the case of some of the tribal issues that these generally had names of the tribe and the executive head (or president) side by side, and sometimes bore the name of the Rājanya or executive head only e.g. Rājanya Mahimitra. In the case of the Mālavas the coins were merely tiny pieces and too small to have the name of the tribe and the head of the state side by side, though we find that on occasions the attempt was made (Smith's coin No. 70). Therefore the Rājanyas issued the coins in their names, also in the name of the tribe of which they were the executive heads. That they were hard-pressed for space is evident from the fact that the word '*Mahārāja*' is generally contracted into one letter '*Ma*'; and in some cases the last letter is not properly drawn.¹ Another suggestion that can be made is that the coins with the names of princes are those belonging to the feudatory chiefs of Karkota Nāgar who were the subordinate chiefs of the Mālava tribe that had extensive territorial possessions in this region. But this conclusion can be drawn in case the coins with personal names are confined only to that particular town, and the coins with tribal names are found scattered around it. The matter, however, must be left for further investigation.

The personal names in the coin legends are very peculiar and 'are so many puzzles'.² Jayaswal's view that these are abbreviations seems to be the only correct interpretation. The names are surely 'odd', but to take them to be of foreign origin has no justification. The legends are in Brāhmī and in the language of the country; and if we accept Jayaswal's suggestion many of them, though not all, are found to be of Sanskrit origin and perfectly intelligible. Jayaswal takes the letter '*ma*' to be the abbreviation for the word '*Mahārāja*' and out of the twenty names in Smith's catalogue, eleven are preceded by this letter. The Mālava coins bear a great deal of resemblance to the coins of the Nāgas; and there also we find that abbreviations were necessitated by the limited nature of the space for the legends e.g. '*Mahārāja Gaṇa*' for '*Mahārāja Gaṇendra*'.

The Mālava coins are generally very small. A coin in Smith's catalogue (No. 106) 'is one of the smallest coins in the world'; it weighs only 1.7 gr. and has a diameter of .2 inch. The small size of these coins and the metal used (copper) clearly testify to the poverty of the community that was served by them. It is also evident that the Mālavas had very little intercourse with the outside world as these coins are obtainable only at Nāgar and its immediate neighbourhood. It was thus a

¹ S. CCIM., Nos. 71, 73, 86, 99, etc.

² J. HP. I, p. 218.

peculiar coinage which merely served the necessities of a community on a low economic level. I follow Smith's classification as the most convenient for reference, though with necessary modifications.

Class A. With the Tribal Name.¹ AE.

Group 1. (a) Second Century B.C. (circular).

The eleven coins in this group are assigned to the second century B.C. by V. Smith. In determining the date of these coins, he relies upon Nos. 1 and 11. These two coins may be ascribed to the 2nd century B.C. on palaeographical grounds, and they may belong to that early period as the legend is in Prākṛit—*Mālavāṇa Jaya* in coin No. 11; and the legend in No. 1 also should be read *Mālavāṇa* instead of *Mālavā* (*nām*), as proposed. The other coins with legends in Sanskrit of the classical style must be assigned to a very much later date, perhaps 2nd century A.D.

(i) *Obv.* : *Mala*, Tree in railing.²

Rev. : *Nandipada* Symbol.

The word 'Mala' is taken by Mr. Douglas to be the name of the 'original founder of the tribe'. So these coins assuredly belong to the earlier series.

(ii) *Obv.* : *Mālaya*.³

Rev. : Obscure, irregular dots. 'Mālaya' might have been derived from 'Mala'—meaning 'the tribe of Mala'.

(iii) *Obv.* : *Hill* Symbol (so-called '*chaitya*' of three arches); above, *Jaya* in large old characters.⁴

Rev. : Radiate sun and another symbol; legend—*Mālavāṇa*, in 2nd century B.C. script (Smith).

Group 1. (b) 100 B.C.—100 A.D. AE.

Obv. : Legend *Mālāva*.

Rev. : A zig-zag line (snake or river?) and a *Nandipada* symbol. (Smith—Nos. 7 and 8).

Group 1. (c) 100 A.D.—200 A.D.

(i) *Obv.* : Legend *Mālavānām Jaya* in classical Sanskrit.

Rev. : Obscure. (Coins Nos. 2, 3, 5, 6 and 9—Smith).

(ii) *Obv.* : Conventional tree in railing with *ja* l. and *ya* r.

Rev. : Perhaps the legend—*Mālavānām*.

Group 2. With *Vase* rev.⁵ (circ.) AE.

Obv. : *Mālava jaya* in script of 2nd century B.C. (?).

Rev. : *Vase* in dotted circle.

¹ S. CCIM., pp. 161-64 and 170-78.

² S. CCIM., p. 174; Douglas, R. O.—*On Some Mālava Coins*, p. 45 (coin No. 2).

³ *Ibid.*, No. 1.

⁴ S. CCIM., 171 (coin No. 11). The coin No. 1 also belongs to the same type; the legend should be read as *Mālavāṇa* and not *Mālavā* (*nām*). The other nine coins of this group must be considered to be of a much later date.

⁵ S. CCIM., p. 171.

Group 3. *Tree and Vase Type* (rec. and circ.). AE.

Obv. : Tree in railing in centre ; legend—*Malavaṇa jaya*. The other variants are *Malava jaya*, *Mālavāṇa jaya*, *Mālavāṇa jaya* (or *jayo*), *Mālavāṇa jaya* or *Malavahṇa jaya*. It is the Prākṛit form and may be dated in the 1st century B.C. or A.D. The variants of the legend may supply a chronological clue, if we could only determine the order of these linguistic variations with the lapse of time.

Rev. : Vase in dotted border.

Group 4. With *Lion* rev. (rec.). AE.

Obv. : The legend—*Mālava jaya* and other variants.

Rev. : Lion standing l.

Group 5. With *Bull* rev. (rec. & circ.). AE.

Obv. : *Malavahṇa jaya* and other variants.

Rev. : Humped Bull walking l.

These coins seem to be of a later date, perhaps 1st century A.D. Coins Nos. 41, 47 and 49 in Smith's catalogue clearly do not belong to this type. In No. 57 the legend is reversed ; it is to be read from right to left, and this is surely of an earlier date, perhaps 2nd century B.C.

Group 6. *King's head* rev. (circ). AE.

Mr. Douglas seems to be correct in his statement that coins Nos. 58, 59, 60 and 72a in Smith's catalogue are really Nāga coins. No. 61 is a Mālava coin but cannot be included in this group, as its *rev.* is very obscure. The similarity of the coins of this group with the Nāga coins was recognised by Smith also.

Obv. : The legend should be read as—*Mahāgaṇasa jaya*, i.e. 'Victory to Mahārāja Gaṇapati'—'distinct points of similarity in design between them and the coins of Mahārāja Gaṇapati of Nāga'.

Rev. : King's head r. with curly hair. Prof. Rapson does not accept Smith's identification. Really it is very difficult to recognise the type as a 'curly head' ; it may be a 'fantail peacock'.

Group 7. *Fantail Peacock* rev. AE.

These coins are of an early date, perhaps 2nd century B.C. ; the letters read from right to left.

Obv. : The central device is very obscure, it is not possible to accept Smith's opinion that it stands for a female figure (Smith—No. 63). The legend seems to be *Mālava gaṇasya jaya*.

Rev. : Peacock facing with expanded tail, covering the whole surface of the coin.

Group 8. *Miscellaneous Devices*. AE.

Some of the coins are of an early date. Coin No. 66 is assigned to the 2nd century B.C. by Smith ; No. 67 also belongs to the same period at least, as it has the legend 'Mala' ; Nos. 67a and 67b are of a much later date and No. 64 perhaps belongs to the 2nd century A.D. This group has two coins with tree on the *obv.* and one with an open lotus flower.

In three other coins, we have only the variants of the 'Mālava' legend. On the *rev.* Smith identified a Nandipada; but a snake, a peacock and a solar symbol as suggested by him cannot be made out.

Class B.—With the names of Mālava chiefs (?).¹ AE.

(a) The Early kings—100 B.C. or earlier.

(1) *Bhapaṃyana*, or *Bhampāyana* (Jayaswal), c. 200 B.C. The 'tree in railing' Type. The animal on the *rev.* seems to be a recumbent Bull and not a lion or tiger as suggested by Smith. (Coin No. 68).

(2) *Yama* or *Maya*.—2nd century B.C.

The 'Tree in railing' Type; on the *rev.* 'Mālava' Symbol; I do not find the snake (Smith No. 69).

(3) *Majupa*, i.e. Mahārāja *Jupa* (Yūpa). The legend in two lines—(i) *Malavā*, (ii) *Majupa*, both read from right to left. The *rev.* is obscure, perhaps a lion. It is an early coin (200 B.C.), *Jupa* was surely a Mālava chief (Smith—No. 70).

(b) From c. 100 B.C.—100 A.D.

(1) *Mapojaya*. Jayaswal takes it to be Mahājaya i.e. Mahārāja *Jaya*. Two Types of coins—(1) with lion *rev.* (No. 71), and (ii) with elephant *rev.* (No. 72); the single line legend on the *obv.* *Mapojaya* or *Mahājaya* (?).

(2) *Mapaya*, or Mahārāja *Paya*, perhaps the same man as *Paya* and therefore of a later date—acc. to Smith c. 300 A.D. Type (i) Humped Bull *rev.* and single line legend *Mapaya obv.* (Smith—Nos. 73–78); (iii) the same *obv.* but lion *rev.* (?) (No. 79). No 72a is a Nāga coin and referred to above.

(3) *Magajaśa* is the abbreviation of Mahārāja *Gajasa*,—'Of Mahārāja *Gaja*'. (4) *Magaja* is the identical name—'Mahārāja *Gaja*'. So the coins Nos. 80–84 (Smith) may be taken to be the coins of one and the same king. Type—(i) *obv.* *Magajaśa*; *rev.* defaced. (Nos. 80 and 81); (ii) *Obv.* *Magaja*; *rev.* elephant or obscure (Nos. 82–84).

(5) *Magojava*, or *Magajava* (Jayaswal), i.e. Mahārāja *Gajava* (Gajapa?). Perhaps this name is identical with *Gajava*; Legend—*Magojava obv.*; Lion sitting *rev.* (Nos. 85–87).

(6) *Gajava* (Gajapa?). Perhaps identical with king No. 5; Legend *Gajava* on *obv.*; and Lion (?) *rev.*

(7) *Gojara*.—Legend *Gojara obv.*; and animal running *rev.* (No. 88).

(8) *Māśapa*, or *Masapa* or Mahārāja *Sarpa* (Jayaswal)—the legend *Māśapa* on the *obv.*; defaced *rev.*

(9) *Pachha*. Legend *Pachha* on the *obv.*; and king's head (?) *rev.*

(10) *Magachha* or Mahārāja *Gachha*: the Bull Type—the legend *Magachha* on the *obv.*; and Bull l. on the *rev.* (No. 94)

(11) *Jampaya*.—The Legend *Jamapaya* on the *obv.*, the blank or defaced *rev.* (No. 99).

(c) The Late Period—c. 100 A.D.—300 A.D.

(1) *Yama*,—the second of this name. A two-line legend—

(a) *Yama*, (b) illegible; and a Bull on the *rev.*; about 100 A.D. (No. 92).

(2) *Jāmaka*,—the legend—*Jāmaka* on the *obv.*; and *rev.* defaced. (No. 98).

(3) *Mahārāya*,—the legend in two lines,—(a) (*Ma*)*h* (ā), (b) *rāya*; *rev.* blank or defaced—2nd century A.D. (No. 101).

(4) *Maraja*—Legend *Maraja* *obv.*; Bull *rev.* (Nos. 102 and 103). It is perhaps an abbreviation for *Mahārāja*; and *Mahārāja* may be the name of the same king, specially as the coin is also dated in the 2nd century A.D.

(5) *Mapaka*,—*Mahārāja Paka*—The Bull *rev.*; and legend *Mapaka* on the *obv.*—2nd century A.D.

(6) *Paya*.—The Bull Type with legend *Paya* on the *obv.* about 300 A.D. For another *Paya* of an earlier date see *Mapaya*; or he may be the same man as the Type is identical, and the characters are of a late date (*Mapaya*, No. 74).
Class C—Without Legend. A.E.

(1) *Peacock and the human figure.*

Obv.: Peacock facing front with expanded tail.

Rev.: Squatted human figure to l. with obscure marks on the r. (No. 104).

(2) *Vase and Bull.*

Obv.: Vase containing flowers.

Rev.: Bull standing l. (No. 105).

(3) *Palm-leaf and the Vase.*

Obv.: Pinnate Palm-leaf.

Rev.: Vase; the smallest coin in the collection, only 1·7 gr. in weight and ·2 in diameter (No. 106).

(4) *Palm-leaf and the Bull.*

Obv.: Pinnate Palm-leaf; *rev.*: Bull standing l. (Nos. 107 and 108).

(5) *Tree in railing.*

Obv.: Tree in railing, perhaps with legend *Jaya*; Analogous to coin No. 4 of Smith and similar to coin No. 26 of Douglas.

Rev. indistinct.

(6) The Bull with large horns.

Obv.: Bull with large horns and spreading ears standing l.

Rev.: defaced.

(7) *Lotus Flower.*¹

(a) *Obv.*: 'Mālava' Symbol; *Rev.* Conventional Lotus Flower.

(b) *Obv.*: defaced; *Rev.*: open Lotus Flower.

¹ Douglas, R. O.—*On Some Mālava Coins* (Nos. 29 and 30).

VIII. *Sibis*, The.—The *Siboi* were the neighbours of the Mālavas (the Malloi) in the Punjab during the time of Alexander.¹ They are referred to as *Sivis* in the Jātaka and the *Saibyas* by Patañjali who took *Śibi* to be the 'name of a country or state'.² Later on like the Mālavas, they migrated from the Punjab to Rajputana³ and their coins are found at Nagari near Chitor. These coins bear the name of their country or nation :—*Majhimikāya Sibi Janapadasa*—'Of the country (or Nation) of the Śibis of Madhyamikā'.⁴ Madhyamikā therefore seems to be their capital and its identification with Nagari is practically certain.⁵ These coins are very rare and the metal is copper.

Obv. : The Upper Part of a Trisūla ('Cross'—Cunningham) in middle with a small symbol in each angle ; to the r. a straight tree rising from a small circle : Legend in Br.—*Majhimikāya Sibi Janapadasa*.

Rev. : *Hill* surmounted by the *Nandipada* with a river symbol below. The coins are earlier than the Christian Era.

IX. *Vimakas*, The.⁶—They are not known from any other source. The coins of their king Rudravarma is included by Cunningham among those of the Audumbaras. It has a great similarity with the 'Mahadeva'⁷ coin and bears the same type. There seems to be some sort of relationship between the Vimakas and the Audumbaras ; perhaps they were neighbours.

The *Elephant and Bull* Type. AE.

Obv. : The Elephant with upraised trunk moving to r. towards trident battle-axe of Śiva ; Br. Legend.

Rev. : Humped Indian Bull to r. and a symbol under head ; it cannot be a flower as suggested by Cunningham. It has a great similarity with the symbol on the *rev.* of the Vṛishṇi coin (C. CAL., Pl. IV, fig. 15) ; and I take it to be a *Chakra* or discus. Kh. Legend.

The Legend.—

Obv. Br. : rājñavemakisarudravarmasa (v) i

Rev. Kh. : rañave vu (.) ma—vijayata (sa)⁸ = ' (coin of) king Rudravarma, the Vemaki or Vaimaki—the king of the Vimakas, the Conqueror '.

X. *Vṛishṇis*, The.—The Vṛishṇis of old lived at Mathurā. According to the account of the Mahā-Bhārata, they went to Dwarakā when hard-pressed by Jarāsandha.⁹ But a branch of it must have remained in the original home ; and in the Śuṅga

¹ J. HP. I, p. 68.

² *Ibid.*, p. 153.

³ D. GDAMI., p. 116.

⁴ JRAS., 1900 (Prof. Rapson), p. 429, footnote 2 ; C. CAL., p. 68, Pl. IV, fig. 6.

⁵ *Ibid.*, fig. 5.

⁶ JRAS., 1900, p. 412 (Bergny) and pp. 428 and 429 (Prof. Rapson).

⁹ D. GDAMI., p. 58 (Dvāravatī) ; J. HP. I, p. 77.

² *Ibid.*, p. 153, footnote 3.

⁴ *Ibid.*

times (2nd century B.C.), they issued coins of which perhaps only two remain.¹ But shortly afterwards, they fell under the influence of the Śāka invaders, and Jayaswal comes to this conclusion from the fact that the Brāhmī legend of the coin was coupled with the 'script of the invader' i.e. Kharoshthī.² The legend on the coins is a peculiar one, different from that of the republican tribes—the Mālavas, the Ārjunāyanas, the Yaudheyas and others. It is not merely in the name of the Gaṇa but in the name, of the Rājanya and Gaṇa of the Vṛshnis.³ Jayaswal tried to clear up this difficulty and showed that in the Vṛshni Gaṇa, the executive power was vested in two Rājanyas.⁴ The coin in Cunningham's book, Pl. IV, fig. 15 is in silver.⁵

Type—*The Half-Lion and Half-Elephant*. AR.

Obv.: A pillar, with half-lion and half-elephant surmounted by a symbol and surrounded by a railing; legend in Brāhmī.⁶

Rev.: The same legend in Kh. and the so-called *Dharma-chakra* of Cunningham. Jayaswal has clearly shown that it is the state symbol of the Vṛshnis⁷—the weapon '*chakra* or discus, which was their symbol according to tradition as early as the time of Rājanya Krishṇa'. Whatever doubt we might have as regards the correctness of the identification is set at rest 'by the cutting edges and the projecting points on the rim'.⁸ The Legend⁹:—

Obv.: Br. Vṛshnir(ā)jajñā gaṇasyatrataraśya.

Rev.: Kh. Vṛshnira—ṇṇa(ga) . . . (t)ra.—

'Of the Vṛshni Rājanya (and) Gaṇa—the protector of the country (Jayaswal).'

It seems to be a better interpretation to take the compound literally.—

Vṛshni-rāja-Jñāgaṇasya, 'Of Jñāgaṇa, the Vṛshni King'. The name of the king who issued this coin is, therefore, Jñāgaṇa. The word *trātāraśya* means 'of the Saviour,' corresponding to Sans. *trātuh*.

XI. *Uddehikas*, The.—The Auddehikas or Auddehikas are mentioned by Varāha Mihira in his *Bṛihat Saṁhitā* and are placed in the central Region.¹⁰ Prof. Rapson concludes from 'the general similarity between the coins of Uddehika and Eran' that the 'two places were not far apart'. The exact

¹ *Ibid.*, p. 157.

³ *Ibid.*, p. 40.

⁵ C. CAL., p. 70.

⁷ J. HP. I, p. 157.

⁹ JRAS., 1900, p. 416 (A. V. Bergny). B. C. Law—Buddhist Studies, p. 398, footnote 2.

¹⁰ JRAS. (1900), pp. 98–102.

² *Ibid.*

⁴ *Ibid.*, p. 41.

⁶ *Ibid.*, J. HP. I, p. 157.

⁸ *Ibid.*, footnote 2.

determination of the locality must await further research. These coins, however, 'mark an interesting stage in the art of coin-making in India'. The symbols instead of being impressed on the coins separately by the different punches are struck from a single die which is made up of a collection of such symbols. The Brāhmī alphabet is of an early period and the coin may safely be assigned to the 3rd century B.C. We have the name of only one king Sūryamitra.

Type No. 1.—The *Humped Bull Type*.¹ AE.

Obv.: Humped Bull to r.; above, tree within railing in a horizontal position.

Rev.: The Legend in old Brāhmī—*Udehaki*, 'the Prince of the Uddehikas'; three symbols above,—the '*Mālava*' symbol, two *fishes* in a pond, and *tree* within railing.

Type No. 2.—The *Elephant Type*.² AE.

Obv.: The Elephant to l.; beneath 'five-hooded snake, and (?) tree within railing, both represented horizontally'. The coin is almost obliterated; so the symbols are obscure and doubtful. The countermark is the 'triangular-headed' symbol at top left. This symbol is very common. Prof. Rapson characterises it as a "curious symbol" which 'occurs so frequently on coins of all kinds—punch-marked, cast and struck—and which no one seems to have explained'. Sometimes it is put within a railing as on many of the coins of Bahasatimitra of Kauśāmbī. There is no doubt that it is an auspicious sign like the *svastika*. The equilateral triangle is the 'symbol of God manifested in the cosmos',³ and when it stands 'on its apex it signifies expansion or evolution, and like the Swastika, the ascending creative force—or life'.⁴ This may explain its general use but what the two small protruding lines on the right of the triangle represent, cannot yet be determined.⁵

XII. *Yaudheyas*, The.—They are included among the *Ayudhajīvin Saṅghas* and they are referred to as a '*janapada*, a nation or country i.e. 'a political community'.⁶ They 'considered military art as the vital principle of their constitution',⁷ and were 'specially noted as warriors'.⁸ The word *yaudheya* is derived from *yudha*, battle⁹ or from a personal name,¹⁰ though the former one seems to be more acceptable. Pāṇini places them in the Vāhika country¹¹ along with other republican states. There is no doubt that the Vāhikas were in the Punjab; and Jayaswal takes the word Vāhika to mean 'the country of the rivers',¹² comprising the Sindh valley and the Punjab. Arrian

¹ *Ibid.*, Indian Coins and Seals I, fig. 1.

² *Ibid.*, fig. 2.

³ Havell, E. B.—*The Ideals of Indian Art*, p. 86.

⁴ *Ibid.*

⁵ See chapter on *Symbols*.

⁶ J. HP. I, pp. 35 and 36.

⁷ *Ibid.*, p. 37.

⁸ C. CAI., p. 75.

⁹ *Ibid.*

¹⁰ J. HP. I, p. 134.

¹¹ *Ibid.*, p. 38.

¹² *Ibid.*

mentions a powerful republic on the east side of the Hyphasis or Beas. Their country was very fertile and the inhabitants were agriculturists but brave in war. Jayaswal suggests with reference to the find-spot of the Yaudheya coins that this unnamed republic on the Beas was probably that of the Yaudheyas.¹ Alexander did not cross the river and had no opportunity of testing the military prowess of this renowned people. The Purāṇas give a monarchical constitution to the Yaudheyas.² Perhaps the original monarchy was later on replaced by an aristocracy of 5,000 councillors—virtually a republic.³

The Yaudheyas survived the Maurya Empire, the Satraps of Mathurā and the Kushanas. The 2nd century A.D. 'was full of their military glory'⁴ and they are referred to in Rudradāman's (150 A.D.) inscription. In the 4th century A.D., the Yaudheyas appear in the inscription of Samudragupta as one of the frontier tribes of the Gupta Empire. Perhaps they left their original home during Kushana period and were in Western Rajputana during the time of Rudradāman. Cunningham identified the Yaudheyas with the *Johiyas* of Bhawalpur who 'now occupy the country on both banks of the Sutlej, and the lower Doab between the Sutlej was named after them—the *Johiyabār*'.⁵ When the Yaudheyas passed away from history cannot exactly be determined but it is certain that by the 7th century A.D. they were no more.⁶ Thus they had a political existence of more than thousand years credited to them.⁷ 'The coins of the Yaudheyas are found in the Eastern Punjab, and all over the country between the Sutlej and the Jumna rivers. Two large finds have been made at *Sonpath*, between Delhi and Karnāl'.⁸ Some of them were found in the Kāngrā District and a great many at Jogadheri in the Eastern Punjab; and Cunningham procured his silver piece⁹ and 300 copper pieces 'between the Sutlej and the Jumna rivers'. So it is evident that the Yaudheya territories were extensive; 'the cities of Lahore, Bhawalpur, Bikanor, Ludhiana and Delhi roughly indicate the limits of the tribal territory'.¹⁰

The Yaudheya coins fall into 3 classes—(a) The earliest,— 'the Bull and Elephant Type' coins have been 'dated a little before or after the Christian era'.¹¹ These are small copper coins of rough workmanship but have some resemblance 'with the earlier coins of the Audumbaras and the Kuṇḍas', and on this ground Prof. Rapson assigns them to about 100 B.C.¹²; and

¹ *Ibid.*, p. 67.

³ *Ibid.*, pp. 67 and 74.

⁵ C. CAL., p. 76.

⁷ *Ibid.*, p. 174.

⁹ *Ibid.*, p. 79.

¹⁰ S. Majumdar—Notes on C. AGI., p. 690.

¹² R. IC., p. 15.

² J. HP. I, p. 74.

⁴ *Ibid.*, p. 149.

⁶ J. HP. I, p. 151.

⁸ C. CAL., p. 76.

¹¹ S. CCIM., p. 165.

these may be as old as the Śunga period.¹ (b) The Brahmanya Deva coins are assigned by Smith to the 2nd century A.D. This was the period of their great military glory,² and it is but natural that they took Kārttikeya the war-god for their coin type. So it is not possible to accept Prof. Rapson's view³ that these coins are to be dated after the 'warrior' type. (c) The 'warrior' type coins have surely been imitated from Kushana models,⁴ and we can safely accept Smith's view that these were in circulation up to 'the completion of the conquest of Northern India by Chandragupta II about 380 A.D.'⁵ These copper coins are big in size and better executed than the rude coins of class (b). It appears that the Yaudheyas were divided into 3 distinct clans,⁶ and those of the second and third clans were 'distinguished by numeral syllables and special symbols'.⁷ Some coins have 'dvi' (two) and some 'tri' (three), and these obviously refer to their three sections. The coins of the third class are 'the least numerous'.⁸

Type No. 1. The *Bull and Elephant Type*⁹ (c. 100 B.C.). AE.

Obv. : Bull standing r. facing a curved object (the national standard ?) within a railing; 'early' Br. legend—*Yadheyana*, (Yaudheyānām), 'of the Yaudheyas'.¹⁰ In some of the specimens, there is another legend under the Bull which no body has been able to read; it seems to end in *me*.¹¹ In other coins of the same type in brass or similar alloy occurs the legend—*Kṛi ya(dhe)yana*¹²; the second word *Yadheyana* is certain and for the first word various suggestions are made—(a) *Kṛipadhanaba* (Rodgers); (b) *Bhūmidhanusha* (Cunningham); (c) *Bhūpadhanusha* (Smith), and (d) *Bahudhañake* (Rapson).¹³ Smith is almost positive about the reading *Bhūpadhanusha*, and as this word means 'of the Lord of the Desert' and seems to fit in with the locality of the Yaudheyas, its correctness is beyond doubt. But there may be several varieties of this inscription as pointed out by Prof. Rapson.

Rev. : Elephant walking r.; *nandipada* symbol above and a 'scythe-like' object.¹⁴ In some specimens the curved line under the elephant is clear.¹⁵

¹ J. HP. I, p. 150.

³ R. IC., p. 15 (Sec. 60).

⁵ *Ibid.*

⁷ S. CCIM., p. 165.

⁹ S. CCIM., Pl. XXI, 13 and 14, pp. 180 and 181; C. CAL., Pl. VI,

figs. 2-4; R. IC., Pl. III, 13.

¹⁰ S. CCIM., p. 180 (No. 1).

¹² *Ibid.*, p. 181 (No. 5).

¹³ JRAS., (1900), p. 107, footnote 1. Recently coin moulds bearing the legend *y(aud)heyāna bahu-dhañake* have been found at Khokra Kot near Rohtak by Dr. Birbal Sahni (*Current Science*, May 1936, p. 796ff.).

¹⁴ *Ibid.*, p. 180 (No. 3), Pl. XXI, 13.

² *Ibid.*, p. 149.

⁴ *Ibid.*, S. CCIM., p. 165.

⁶ J. HP. I, pp. 145 and 160.

⁸ *Ibid.*

¹¹ *Ibid.* (No. 2).

¹⁵ C. CAL., Pl. VI, fig. 3.

Type No. 2. The *Three Symbols* Type.¹ AE.

Two coins are included by Cunningham among those of the Yaudheyas; one of them he found at Behat with other Yaudheya coins. These might be earlier than the 'Bull and Elephant' Type, but the identification is not absolutely certain. One of them is a single-die coin² with only three symbols; the other is broken, has three symbols, and part of a legend in indistinct Br. characters.³

Obv.: The Three Symbols.—Tree in railing in the middle is common. In the single-die coin, the symbol to the l. is one of four circles ('Mālava' Symbol) and the other on the r. is perhaps a conventional tree like the symbol in coin No. 3 of Balabhūti of Mathurā (S. CCIM., p. 192). The double-die coin has the 'triangular-headed' symbol on the l. and a circular object (*chakra* ?) on the r.; and inscription only partly legible—*Mahārāja(sa)*. The *rev.* indistinct perhaps a few letters.

Type No. 3.—The *Brahmanyadeva* Type.⁴ AR. and AE.

Var. a.—Second Century A.D.

Obv.: Six-headed god (*Kārttikeya*) standing on lotus facing with l. hand on hip and r. hand raised and a barbed spear on the l.; the legend completed from a number of coins,—*Bhāgavataḥ svāmīno Brahmanyadevasya*, 'coin of (dedicated to) Almighty Lord Brahmanyadeva'. Here Brahmanyadeva is not the name of a king as presumed by Smith.⁵ It is surely the national god *Kārttikeya*⁶ the war-god, to whom the warlike Yaudheyas dedicated their coins. Whatever doubt we might have is set at rest by the substitution of *Kumara*,⁷ another name of *Kārttikeya* for Brahmanyadevasya in some of the coins. In a few of these coins, the legends end in words like *drama*, *dama* or *darma*. V. Smith was not sure about its meaning and could not explain it⁸; it is however only a variant of the Greek word *drachm*, signifying here 'a coin'. In some specimens the god stands on a pedestal,⁹ and a vase also occurs in the r. field in a few cases.¹⁰ *Rev.*: Six-headed figure standing on lotus, facing, tree in railing r. and the so-called *chaitya* with umbrella (the *Hill* symbol) and *nandipada* above it on the l.¹¹ In some specimens the figure stands on a bent line,¹² and in others it

¹ C. CAI., p. 77, Pl. VI, figs. 1 and 5.

² *Ibid.*, Pl. VI, fig. 1.

³ *Ibid.*, Pl. VI, fig. 5.

⁴ S. CCIM., pp. 181-82, Pl. XXI, 15-17; C. CAI., p. 78, Pl. VI, figs. 9-12; R. IC., Pl. III, 15.

⁵ S. CCIM., p. 181, footnote 1.

⁶ R. IC., Pl. III, 15; J. HP. I, pp. 150 and 218. 'On the second type they give the representation of God Kārttikeya, the presiding deity of Heroism and War and name him on the coin. In fact the coin itself is significantly dedicated to the Deity of Heroism. In other words the figure is their *La Liberté*'.

⁷ S. CCIM., p. 182 (Coin Nos. 15-17).

⁸ *Ibid.*, p. 182, footnote 1.

⁹ S. CCIM., pp. 181-82 (Nos. 9 and 17)

¹⁰ *Ibid.*, p. 182 (No. 15).

¹¹ *Ibid.*, p. 181 (No. 8).

¹² *Ibid.*, (No. 9).

has only one head radiate.¹ V. Smith takes the figure to be a goddess but his identification does not appear to be correct. It seems to be a male figure and may represent *Kārttikeya*. But in one of the coins (C. CAL., Pl. VI, fig. 12)² the figure is single-headed radiate and is undoubtedly a female. What it stands for cannot be definitely ascertained. It must be a goddess worshipped by the Yaudheyas. Among the symbols,—*svastika*³ also appears in some coins.

Var. b.⁴ *Obv.* : As in Var. a.

Rev. : Quadruped, perhaps stag standing to r. ; above a (?) shrine with curved roof,⁵ or a *chaitya* (Hill) to r. and a symbol above and the wavy line (the snake or river).⁶

The *Brahmanyadeva Type II*.⁷ AE.

Obv. : Single-headed god (*Kārttikeya*) radiate facing, vase to r. ; Legend—*Brahmanyadevasya drama*, 'the coin of Brahmanyadeva'.

Rev. : Quadruped (Stag ?) standing l. facing (?) Tree, Vase with streamers on the r. and a dotted circle.⁸ In another coin, we have in the place of 'the vase and circle' a crescent and the zig-zag line (river ?) below.⁹

Type No. 4. * The *Warrior Type*.¹⁰ AE. (2nd century A.D.).

Var. a. No *Obv.* numeral, and no *rev.* symbol.¹¹

Obv. : A Warrior standing, facing f. grasping spear in r. hand with l. hand on hip ; peacock at his l. foot ; Br. legend—*Yadhayaganasya jaya*, (*Yaudheyaganasya jaya*), 'Victory to the Yaudheya tribe'. This figure of a warrior with a spear 'in the pose of a dignified 'tri-bhaṅga' represents the type of their citizen-soldier'.¹²

Rev. : A robed male figure walking l. with r. hand extended and l. hand on hip, like *Mīro* on Kushana coins ; dotted circle.

Var. b. Numeral *Dvi* on *obv.* ; Vase on *rev.*¹³

Obv. : As in Var. a. ; the numeral '*dvi*' (second) over r. shoulder.

Rev. : As in Var. a. : Vase containing leaves (not flowers) in l. field and a symbol 'with three points and three dots' in r. field. The 'Vase with leaves' is even now used in Hindu religious ceremonies and is looked upon as an auspicious object.

Var. c.—Numeral '*Tri*' on *obv.* ; Shell on *rev.*¹⁴

¹ *Ibid.*, (No. 16).

² C. CAL., p. 78.

³ S. CCIM., p. 181 (No. 9).

⁴ *Ibid.*, p. 182 (No. 20) ; C. CAL., Pl. VI, fig. 13.

⁵ S. CCIM., p. 182 (No. 20).

⁶ C. CAL., Pl. VI, fig. 13.

⁷ S. CCIM., p. 182 (Nos. 18a, 18b, and 19).

⁸ *Ibid.*, (No. 18b).

⁹ *Ibid.*, (No. 19).

¹⁰ *Ibid.*, pp. 182-83, Pl. XXI, 18-20 ; C. CAL., Pl. VI, 6-8 ; R. IC., Pl. III, 14.

¹¹ S. CCIM., Pl. XXJ, 18.

¹² J. HP. I., p. 150.

¹³ S. CCIM., Pl. XXI, 19 ; C. CAL., Pl. VI, 7 ; R. IC., Pl. III, 14.

¹⁴ S. CCIM., Pl. XXI, 20 ; C. CAL., Pl. VI, 8.

Obv. : As in Var. a. and b. ; *tri* (third) over r. shoulder.

Rev. : As in Var. a. and b. ; *Shell* instead of Vase ; Shell is also an auspicious object ; and a symbol composed of ' two zig-zag lines with a line between ' . The numerals *Dvi* and *Tri* refer to the second and third sections of the Yaudheya Gana.

XIII. *Rājanya Janapada*.¹—The identification of Rājanya coins was long delayed due to the wrong reading of the first word as *Rājña* or *Rajña*.² V. Smith read the three letters as *Rajana* and took it to be equivalent to Sanskrit *rājāṇya* or *Kshatriya*.³ He explained the legend *Rajña janapadasa* ⁴ as meaning ' coin of the Kshatriya country ' . But Mr. Jayaswal was the first to correct this mistake. He takes *Rājanya* as ' the proper name of a political people ' .⁵ They came on the scene about 200–100 B.C. and issued coins in the name of their country. The Rājanyas as a people are referred to in ' Pāṇini, Kātyāyana and Patañjali and also by the Mahā-Bhārata ' .⁶ Rājanya coins are procurable in Mathurā⁷ ; so Smith takes their territory to be not far from that city and locates it ' in some part of eastern Rājputana ' , perhaps in Dhoolpur State.⁸ But as ' coins of this type are found on the Manaswāl plateau, Hoşhyārpur District ' ,⁹ Mr. Jayaswal presumes this to be their home.¹⁰ The type of these coins is closely related to that of the Northern Satraps of Mathurā¹¹ and the legends are either in Kh. or Br. Prof. Rapson thinks that the coins with Kh. legends belong to an earlier date¹² and the Rājanya coins are ascribed to 2nd or 1st century B.C.

Type No. 1. *Standing Figure Type*.¹³ AE.

Var. A. With *Kharoshthī legend* (cast or die-struck).

Obv. : Standing figure, perhaps a deity, with r. hand raised, as on N. Satrap coins ; Kh. legend—*Rajña janapadasa*, (coin) of the Rājanya Janapada.

Rev. : Humped Bull standing l., a symbol above ; die-struck and extremely rare.

Var. B. With *Brāhmī legend*.¹⁴ AE.

Obv. : Similar ; same legend in Br.

Rev. : Bull standing l. in a rayed circle ; cast in high relief (No. 2—Smith), or die-struck (No. 3—Smith).

Type No. 2. *Tree in railing and Lion Type*.¹⁵ AE.

Obv. : Tree in railing Br. legend . . . (?) Janapada(sa).

Rev. : Lion standing l., facing (?) a post ; indistinct Br. legend, perhaps including *Rājño*.

¹ R. IC., p. 12 (Sec. 47).

² S. CCIM., p. 164.

³ J. HP. I., p. 158.

⁴ S. CCIM., p. 164.

⁵ *Ibid.*

⁶ R. IC., p. 12 ; S. CCIM., p. 165.

⁷ S. C. CCIM., p. 179 (No. 1).

⁸ *Ibid.*, p. 180 (No. 8).

⁹ C. CAI., p. 89.

¹⁰ *Ibid.*

¹¹ *Ibid.*,

¹² *Ibid.*, p. 165.

¹³ J. HP. I., p. 159.

¹⁴ R. IC., p. 12.

¹⁵ *Ibid.*

ABBREVIATIONS.

1. ASI-AR.—The Archaeological Survey of India—Annual Report.
2. ASB.—The Asiatic Society of Bengal.
3. C. ASR.—Cunningham, A.—The Archaeological Survey Report.
4. C. AGI.—Cunningham, A.—The Ancient Geography of India (Calcutta, 1924).
5. C. CAI.—Cunningham, A.—The Coins of Ancient India.
6. CHI.—The Cambridge History of India, Vol. I.
7. D. GDAMI.—Dey, M.—The Geographical Dictionary of Ancient and Mediæval India.
8. JRAS.—The Journal of the Royal Asiatic Society of Great Britain and Ireland.
9. JBORS.—The Journal of the Bihar and Orissa Research Society.
10. J. HP. I.—Jaysawal, K. P.—Hindu Polity, Vol. I.
11. S. CCIM.—Smith, V. A.—The Catalogue of Coins in the Indian Museum, Calcutta.

THE TRIBES : THEIR TYPES AND SYMBOLS.

Types. Animals—

- (a) Bull : (i) Humped, (ii) without Hump, (iii) recumbent.—Audumbaras : (i), Arjunāyanas (i), Mahārāja Janapada (i), Mālavas (i), (ii) and (iii), Vimakas (i), Uddehikas (i), Yaudheyas (i), Rājanyas (i), and Nāgas (iii).
 - (b) Camel : Arjunāyanas.
 - (c) Elephant : Arjunāyanas, Audumbaras, Mālavas, Vimakas, Vṛishṇis (Half-Elephant), Uddehikas, Yaudheyas.
 - (d) Lion : Mālavas, Rājanyas.
 - (e) Stag : Kuṇindas, (Almora Branch), Mālavas, Yaudheyas (?).
 - (f) Half-Lion and Half-Elephant : Vṛishṇis.
- Bird : Fantail Peacock—Mālavas.

Tree—

- (a) Pinnate Palmleaf—Mālavas.
 - (b) Tree-in-Railing—Mālavas, Rājanyas, Audumbaras.
- Human Figure—Standing, Arjunāyanas, Aśvakas, Audumbaras, Mahārāja Janapada, Yaudheyas (warrior), Rājanyas ; Mālavas (squatting).

Weapons—

- (a) Chakra—Vṛishṇis.
- (b) Triśūla—Sibis.
- (c) Wheel—Kulūtas, Nāgas.

Religious—

- (a) Chatreśvara Type—Kuṇindas.
- (b) Brahmanyadeva Type—Yaudheyas.
- (c) Viśvāmitra Type—Audumbaras.
- (d) Vase—(with leaves), Mālavas.
- (e) Sun—(?) Audumbaras (perhaps Pañchāla coin).

(f) Temple—Audumbaras.

(d) A Scythe-like object—Yaudheyas (Smith—No. 3) uncertain.



(e) Symbol with three points and Three dots (?) No. 27.
(Smith)—Yaudheyas.



King's Head—(?) perhaps Fantail Peacock—Mālavas.
Warrior—Yaudheyas.

Symbols. Animals—

(a) Bull,—Rājanyas, Nāgas (recumbent), Mālavas.

(b) Elephant—Mālavas.

(c) Lion—Rājanyas, Mālavas.

(d) Snake—Mālavas, Uddehikas (five-hooded).

Birds—

(a) Cock (or peacock)—Yaudheyas.

(b) Peacock—Mālavas, (also fantail).

Tree—

(a) Tree-in-Railing,—Audumbaras, Kuṇindas, (Kuṇinda Branch of Almora), Sibis (rising from a circle), Rājanyas, Mālavas, Uddehikas, Yaudheyas, or (conventional).

(b) Lotus flower—(open or conventional) Mālavas, Audumbaras (?).

(c) Pinnate Palm-leaf,—Mālavas.

Human Figure—

(a) Female with left hand on hip—Kuṇindas, Mālavas ?
(No. 63—Smith's Catalogue).

(b) Squatted—Mālavas.

Weapons—

(a) Chakra—Vimakas, Yaudheyas.

(b) Triśūla—Audumbaras (their Standard ?), Vimakas.

National Standard—

(a) Triśūla or Trident Battle-Axe.—Audumbaras.

(b) Pillar with Svastika,—Audumbaras.

(c) Shaft surmounted by a Wheel—Audumbaras.

(d) Curved object within Railing—Yaudheyas.

Hill—(so-called Chaitya)—Aśvakas, Kulūtas (peculiar), Kuṇindas (with Umbrella), Sibis, Yaudheyas, Mālavas.

(b) Pile of Balls,—Aśvakas.

Auspicious Objects—

- (a) Shell—Yaudheyas (Section *Tri*).
 (b) Vase—Kuṇindas (with flower or leaves), Yaudheyas (with Umbrella), Kuṇindas.

Auspicious Signs—

- (a) Mālava (or Ujjain) Symbol—Mālavas, Uddehikas, Yaudheyas.

- (b) Nandipada—Aśvakas, Audumbaras, Kulūtas, Kuṇindas, Sibis, Vṛishṇis, Yaudheyas.



- (c) Svastika—Aśvakas, Kulūtas (curved), Kuṇindas, Yaudheyas.



- (d) Triangular—headed Symbol—Kuṇindas, Uddehikas, Yaudheyas.



- (e) Two S's with a line between—Kulūtas, Kuṇindas, Yaudheyas.



Solar etc.—

- (a) Radiate sun—Mālavas.
 (b) Crescent—Mahārāja Janapada, Yaudheyas.
 Wavy Line—(Vine branches ?) Aśvakas.
 Zig-zag Line—Aśvakas (river) Audumbaras, Kuṇindas (ornamental ?), Sibis, Mālavas, Yaudheyas (snake or river ?).

Various—

- (a) A Disc surrounded by dots—Kuṇindas (mint-mark ?)
 (b) Wheel surrounded by dots—Kulūtas.
 (c) Circle with dots around—Yaudheyas.

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S. K. CHAKRABORTY.

336. COINAGE OF THE NIZAMS OF HYDERABAD.

The decline of the Mughal Power in India after the death of the Emperor Aurangzeb was the signal for the rise and establishment of various independent monarchies throughout India. Subhedars or Governors of different provinces under the supreme power declared their independence and the Mughal Emperors were too weak to exercise any control over them. Nadir Shah's invasion in 1739 during the reign of Muhammad Shah made the case still worse for the Emperors until at last they were Emperors merely in name while the real authority, even at the Capital and the surrounding districts, was in the hands of the Vazirs or the Marathas and subsequently of the English.

In these circumstances, the Nizam's power in the Deccan was brought into being. Nizamulmulk the last of the Governors of Deccan founded the present dynasty. He declared himself independent in 1721 (1133 A.H.) and by virtue of his valour and statesmanship laid the foundations of his State so strong that it has remained almost undisturbed to this day, and is now premier among Indian States. In accordance with the decision of the Paramount power, mints of almost all the Indian States had to be closed down in 1900 but that of the Nizam State continues to issue its own currency.

It is somewhat strange that no single article or notice of the coins of the Hyderabad State has yet appeared in the Numismatic journals. Even the exhaustive Catalogue of the coins of Indian States in the Indian Museum, Calcutta, has failed to notice these coins. I, therefore, deemed it proper to bring some of my observations on the Coinage of this Premier Native State of India to the notice of the Numismatic Society of India.

The following is a list of rulers of the dynasty :—

1. Nizamulmulk Asafjah	..	Ruled from	1133 to 1161 Hijri.
2. Nawab Mir Ahmadkhan	..		1161 to 1164 ..
Nizamuddaulah Nasirjung.			
3. Muzaffarjung Sadullah Khan..	..		1164 (2 months).
4. Nawab Syed Muhammad Khan	..		1164 to 1175 Hijri.
Asafuddaulah Salabatjung.			
5. Nawab Mir Nizam Ali Khan	..		1175 to 1218 ..
Bahadur Asafjung (Asafjah II).			
6. Nawab Mir Akbar Ali Khan	..		1218 to 1244 ..
Sikandarjah (Asafjah III).			
7. Nawab Mir Farkhunda Ali	..		1244 to 1273 ..
Khan Nasiruddaulah (Asafjah IV).			
8. Nawab Mir Tahniyat Ali Khan	..		1273 to 1285 ..
Bahadur Afzaluddaulah			
(Asafjah V).			

9. Nawab Mir Mahboob Ali Khan Ruled from 1285 to 1330 Hijri.
(Asafjah VI).
10. Nawab Mir Usman Ali Khan „ 1330 to this day.
(Asafjah VII).

As has been pointed out by me in my paper on Non-Mughal Mints of Shah Alam II read before the Seventh Oriental Conference at Baroda, coins were struck during the late Mughal period by the local authorities in the Emperor's name from various mint towns with distinctive marks of their own, though the Emperor had no control over the mints. The reason for this continuance of the Emperor's name seems to be the apprehension of the revival of the Mughal Power and the dislike of a change in the currency by the public who still cherished a vague notion of the supreme authority of the Mughal Emperor.

The common stamp of the Mughal Emperor's name on the coins gave them currency throughout India in spite of the diversity. The same held good in case of the Nizam's dominions at Hyderabad. A reference to page 32 of *Tarikhe-Rashiduddin-khani*, the report of the Subhedar of Aurangabad about the current coinage as published in the *Aurangabad Gazetteer*, page 727 and *Bustan Asafia*, page 162 would show that no less than 40 varieties of rupees and about a dozen varieties of copper coins were current in the Nizam's State till about 40 years ago.

There is nothing in the Coinage that could distinguish the Coinage of the Nizam from that of the others till 1218 A.H. when Sikandarjah introduced the Persian letter س on the coins. A coin with legend, dates and name of the ruling Mughal ruler with the above letter has therefore to be assigned to Sikandarjah and similarly his successor Nasiruddaulah's coins are distinguished by the initial letter ن of his name on the then current coins. His successor Afzaluddaulah continued the same practice on his coins by introducing ا as the initial letter of his name.

It was during this ruler's reign that the mutiny broke out and the Mughal Power was finally overthrown. This encouraged most of the Native States to abolish the Mughal Emperor's name and legend prevalent hitherto on the coins and to substitute it with their own. The Nizam's Coinage was not an exception. Asafuddaulah also introduced a separate coinage for his own State wherein the Mughal Emperor's name was not to be seen.

The coins prevalent up to the mutiny had سکه مبارک شاه on the obverse and محمد بهادر شاه بادشاه غازی or عالم بادشاه غازی جلوس on the reverse with or without the letters س or ن and the mint mark on the reverse.

This was substituted by Asafuddaulah from 1275 A.H. with coins having the following legend :—

۹۲	}	on the obverse.
آصف جاه نظام الملک بہادر		
۱۲۷۵		
سنہ		
and		
جلوس	}	on the reverse.
۲		
میمنت مانوس		
حیدر آباد		
ضر ب		
فرخندہ بنیاد		

Rupees, half rupees, quarter rupees and even two annas and an anna pieces of this type and legend seem to have been issued in silver. Copper pieces of half anna and quarter anna were also issued with the same legend. Gold coinage seems to be rare and it appears that these Mohurs or Ashrafis were struck only at auspicious or important occasions by the ruler or the nobles in the State mint and their values differed from time to time according to the gold rate. Gold coinage bore the same legend as the silver one.

This sort of coinage continued to be current under the name of 'Hali' along with all other sorts of earlier rupees termed as 'chalanies' till about 40 years ago when Mir Mahboobalikhan the then ruler issued orders to stop the circulation of all other coins in his State except the 'Hali' issued by his predecessor since 1275 and caused them to be melted. This was enforced very rigidly by penalizing the possession and use of the old coinage in ordinary transactions. This caused a total abolition of the Chalani rupees which were still in use with a decreased value. In 1312 the machine made coins were introduced by Mir Mahboobalikhan which were equal to the current rupee in size and weight. This new Hali rupee threw even the old Hali rupees into the background. (Hali literally means current and so does the word chalani.) The mint was placed under the management of an English officer who systematized the whole currency on the lines of the coinage of the crown. Coins of various fractions of a rupee were also issued from the machines of the mint. The legend on these coins remained the same as on the old Hali rupees with the difference of regnal and Hijri years which changed from year to year.

In 1322 another change in the coinage followed which brought the coinage almost to the level of our current British Currency and is still current in that State. The gold and silver coinage has the drawing of Chahar minar—a central edifice with four towers in the city of Hyderabad, with the initial letter م in the arch of the building to indicate the name of the ruler Mir Mahboobalikhan. At the top of this design the words آصفجاء الملك to the right and بهادر to the left in the Arabic characters with the Hijri date at the bottom is seen on the obverse. The reverse of this rupee bears يك روپہ in a small circle in the centre with جلوس میمنت مانوس ضرب فرخنده بنیاد حیدرآباد running around.

The half rupee, quarter rupee and one-eighth rupee coins bear the same legend on them except the value of the coin mentioned on the respective issues.

Modern copper coins bear the same legend on the reverse but the obverse presents a monogram like that of the Turkish or the Egyptian coins, which has the same legend as above beautifully interwoven in it. Half anna and two pies coins of copper were issued during the reign of Mir Mahboobalikhan. The present ruler has introduced pies of copper also.

The rupees of the present ruler bear the same legend on all the coins of the aforesaid denominations except the initial letter ع standing for his name Mir Usmanali Khan in place of the old م of his father and the Hijri year which is changed on the coins from year to year.

He has also introduced a nickel one anna piece and currency notes of different denominations with the Persian legend on the lines of and similar to the British Indian Currency notes.

With this brief survey of the Coinage of the Nizams of Hyderabad I look forward for a detailed study of the same in future, and close for the present with the following description of some of typical coins illustrated in this issue :—

AV. 1. A gold coin of Mir Mahboob Ali Khan (1285–1330 A.H.)
It reads :—

Obverse.

۹۲

آصف جاه

نظام الملك بهادر

۱۲۹۹

Reverse.

جلوس ۱۵

میمنت

مانوس

فرخنده بنیاد

ضرب

- AV. 2. *Obverse* :—Same as No. 1 but date 1311 A.H.
Reverse :—Same as No. 1 but the mint name Hyderabad and Farkhundabunyad, differently arranged.
- AV. 3. Machine made coin of the latest variety introduced in 1322 A.H. by Mir Mahboob Ali Khan. The coin is called half Ashrafi.
Obverse :—The edifice of Chahar minar in centre with the following inscription in Naskh characters :—

نظام الملک	to the right,
آصف جاہ	at the top,
بہادر	to the left,
۱۳۲۸	at the base of the edifice, and
سنہ	
م	in the centre.

Reverse :—The value of the coin نصف اشرفی in the smaller circle in the centre with the same legend as on the reverse of No. 1 running round the same with the Regnal Year.

- AR. 4. This is a silver coin issued by Sikandarjah in the name of the Mughal Emperor Akbar II with the initial letter س on بادشاہ of شا .

<i>Obverse.</i>	<i>Reverse.</i>
محمد اکبر شا (ہ)	۲۵
(س) —————	جلوس
س	————— (میمہ)
(با) دشاہ ۱۳۳۳ غا (ز)	فرخندہ بنیا (د)

- AR. 5. This is a coin issued by Nasiruddaulah in the name of the Mughal Emperor Bahadur II with the initial letter ن over بادشاہ of شا .

<i>Obverse.</i>	<i>Reverse.</i>
محمد بہادر شا (ہ)	۱۸
ن	جلوس
بادشاہ غا (زی) ۱۳۷۳	————— (میمہ)
	س فرخندہ بنیا (د)

- AR. 6. This is a coin issued by Afzaluddaulah in the name of the Mughal Emperor Bahadur II with the initial letter ۱ over بادشاه of .

Obverse :—Same as No. 5 except the date 1274 and the letter ۱.

Reverse :—The same as No. 5.

- AR. 7. The Post Mutiny type of coin introduced by the Nizam after 1275 A.H. wherein the Mughal Emperor's name has disappeared. The legend reads :—

<i>Obverse.</i>	<i>Reverse.</i>
۹۲	جلوس
آصف جاہ	مہمنت مانوس
نظام الملک بہادر	حیدر آباد
۱۲۷۶	ضر
سنہ	فرخندہ بنیاد

- AR. 8. A quarter rupee piece of Mir Mahboob Ali Khan, dated 1287. The legend on both the sides is the same as above.

- AR. 9. A half rupee coin of the above ruler with the date 1307. The legend remains the same.

- AR. 10. A one-eighth rupee piece of the above ruler, dated 1308 with the same legend.

- AR. 11. The first machine made rupee introduced by Mir Mahboob Ali Khan (now known as the old Hali while the old hand made issues were termed Chalani). The legend on the coin is the same as on the old rupees except the change of the year 28 and the Hijri, date 1312.

- AR. 12. The new Hali rupee introduced in 1322 A.H. with the initial letter م in the arch of the edifice on the obverse and the value یک روپہ inserted in the centre on the reverse.

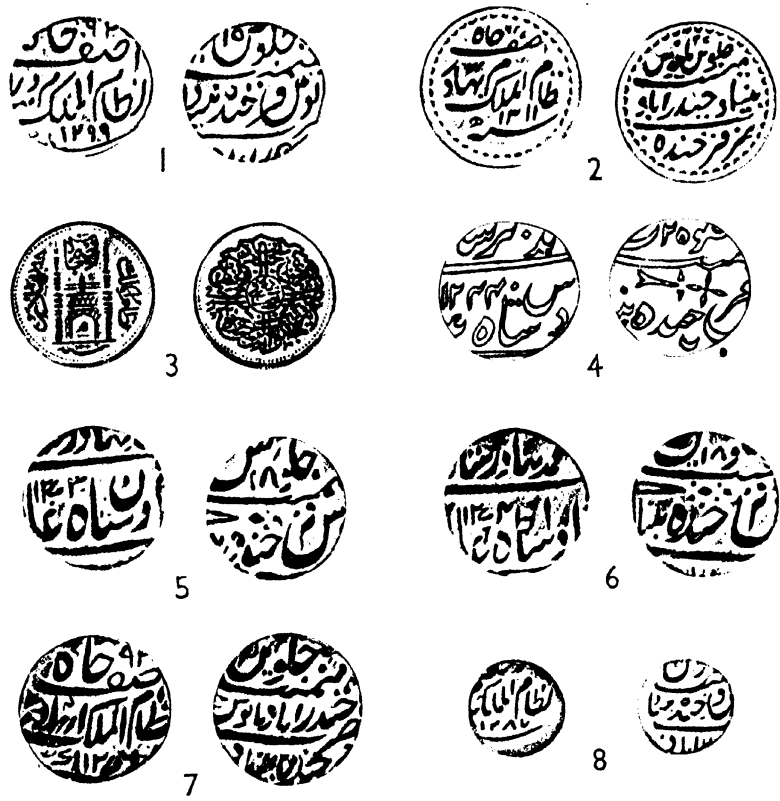
The arrangement of the legend is the same as on AV. 3 above.

- AR. 13. A quarter rupee piece of the latest type bearing the value چہار آنہ on the reverse. Legend is the same as above.

- AE. 14. This is an old dumpy copper pice evidently issued after the Mutiny. Such coins were current till recently.

- AE. 15. The current pice of which six go for an anna. The value در پائی is mentioned on the reverse, the remaining legend being the same as above. The obverse shows a monogram in which the above legend and the initial letter م are artistically interwoven.

R. G. GYANI.



COINAGE OF THE NIZAMS.



9



10



11



13



14



12



15



COINAGE OF THE NIZAMS.

337. THE COINS OF NADIR SHAH AND THE DURRANI DYNASTY.

It must be admitted that a Coin Catalogue is out of date as soon as it appears; this is the fate of any work, however comprehensive, on a progressive subject because knowledge does not stand still. In fact success may be measured by the speed with which a work brings about its own supersession by stimulating further interest and discovery. A Coin Catalogue is usually not in sufficient demand to justify the issue of a second edition. My Catalogue of the Coins of Nadir Shah and the Durrani Dynasty appeared in March, 1934, and I can already add a number of items, usually differing only in date from those listed. Suggestions and emendations have appeared in the reviews. But the chief ground for writing this note is my desire to give some account of the large and important Durrani section of the Cabinet of the American Numismatic Society at New York. The information has been kindly supplied by the Curator, Mr. Howland Wood. I have also received some new coin material from that indefatigable collector, Mr. P. Thorburn; it is remarkable what can be obtained in London.

There are 340 Durrani coins in the Museum of the American Numismatic Society, New York, 16 AV., 205 AR., and 119 AE., an extensive and representative lot, very strong in the copper issues. Mahmūd Shah is represented by 62 silver coins. Some pieces worthy of notice are as follows :—

Nādir. As 21 but date 1152 : a fine specimen of 59.

Aḥmad. Like 126 but date 1163 : AR. Derajat 1181 : AE. Bhakhar 1162, 3.

Taimūr as Nizām. AV. Multan 1178, 8 ; AR. Lāhor 1172, 1.

Taimūr. AR. Ahmad Shahi 1195, 9 : AR. Bhakhar 1205 : AR. Kabul 1193, 6 : AR. Kashmir 1203, 16 and 1207, 20 : AE. Bhakhar 1196 : AE. Kashmir 1200, 13 : AE. Multan 1205, 20.

Zamān. AR. Double rupee like 753 : AR. Pashawar 1207, 2 : AE. Kashmīr 1211.

Shuja. Second reign AV. Kābul 1224, 4.

AR. Bahawalpūr 1220, 1 : AR. Bhakhar 1219 and 1221 : like 1031 with date 1219 : AE. Bhakhar 1218 and 1222.

Qaisar. AR. Kashmir 1223, 1.

Mahmūd. Second reign : AV. and AR. Kabul —, 1 : AR. Bhakhar 1250, 1254, 1262, 1266, 1268.

Aiyūb. AR. Kashmir 1233, 1 : AE. Pashawar 1234.

Kamran. AR. Hirat 1254.

Shuja. Third reign AR. Ahmad Shahi 1255 (half rupee).

From the Philip Thorburn Cabinet I am allowed to mention the following pieces :—

Nadir. As 50 but 1151.

Ahmad. As 257 but date ۸ on reverse : as 264 but dated 4 : as 277 but 1.0 inches. I may remark that Sir Richard Burn also possesses a specimen of 277 on which the word *خام* appears to be replaced by *نیم*.

Taimur. AE. Dera.

Obverse.

119x تیمور شاه

—

بادشاه در . . .

Reverse.

فلوس

ضر —

دیره

Zaman. AR. Bakhar but 1213 : AR. Pashawar 1209, 2 like 762 but reverse arranged like Pl. XI, 13.

Mahmūd. The reverse legend of 919 (half rupee) is

هرات

— صر

۱۲۳۵

Mahmud. First reign. Like 949 but ۱۲۱۷ at top of reverse : 964 but one eighth rupee : like 1148 but date ۱۲۱۶ or ۱۲۱۷ on obverse.

Shuja. Second reign.

Obverse.

In central foliated area

شاه

الملک

شجاع

Reverse.

مانوس

میمنه —

جلوس

۱۲۱۹

بهکهر

ضر —

Rest of couplet as on 995 round it.
This rupee belongs to a new type.

Mahmud. Second reign. Like 949 but ۱۷۷۹ on reverse :
AE. of *Khitta* Kashmir.

Kamran. Like 1207 but date 1248.

Shuja. Third reign. It has been pointed out that coin 1224 is of date 1255 and not 1259 : I accept this correction.

Fath Jang. Mr. Thorburn has a rupee with obverse of 1226 and reverse of 1229.

Also *Nadir Shah.* AV. Quarter Mohur of Qandahar, no date (Oxford).

AE. Sind, dated 1160, N.S. XLV, p. 106.

Additions and Corrections.—

The best account of the battle of Panipat between Ahmad Shah Durrani and the Mahrattas appeared in *Asiatick Researches*, Vol. 3, 1792, pp. 91 f. It is called *An Account of the Battle of Panipat and of all the events leading to it* : originally written in Persian by *Casi Raja Pandit* who was an eye witness of the Battle. I recommend the perusal of this curious and interesting story.

- p. viii. Two and a half days' maintenance of the whole world—see Mrs. Beveridge's *Babur Namah* p. xiv, Transpose 127 and 103.
- p. xxviii. In last line of Footnote, for 184 read 1834.
- p. xxxi. Line 33. For 'Babatih', read 'Bhatiya'—see Elliot and Dowson, Vol. II, p. 28.
- p. xxxiii. After Qandahar on line 26, insert Nadirabad.
- p. xxxv. Line 31. For 'except Hirat', read 'except Hirat and Haiderabad (Sind)'. If Haiderabad was not founded till 1182 A.H., the Sind half mohur of Muhammad Shah—*P.M. Cat.*, Vol. II, p. 320—must have been struck elsewhere.
- p. 157. First line of couplet. For, 'on gold and silver', read 'in gold and silver'.
- p. 187. I deciphered the coin of Shahpur Shah at the last moment when the rest of the Catalogue had been printed off. Hence the name of this brother of Fath Jang should be inserted in the Genealogical Table on p. xvii, also after Fath Jang in the list at the head of p. lvii, and the concluding paragraph on p. lix.

I have been criticized for omitting the Durrani Mint Mashhad (Meshed). The first sentence of the Preface states that the Catalogue describes the money of Nadir Shah and the Durrani Dynasty struck at mints in Afghanistan and India, and I adhered to that intention. However, Persian mints are included on p. xxxv for the sake of completeness ; the correct form Mashhad is given both there and on the Map. The name is not pro-

nounced Meshed in India ; I am writing from the Indian and not the Persian point of view. As regards Ibn Batuta (p. lxix), this form has become familiar and the correct transliteration looks to me pedantic. On the other hand I must write Hirat and Pashawar because the mints appear in this way on the coins.

I much appreciated the competent and constructive criticism of Mr. S. H. Hodivala in his review of my book—*Numismatic Supplement*, XLV, *J.A.S.B.*, May, 1935. In this place I will only mention the tentative couplet of Mahmud's second reign, pp. 157, 190. I anticipated, in fact called for criticism, and I read with much interest Mr. Hodivala's well informed and able remarks on pp. 103 and 104 of his review ; these conclude with the words ' the best course seems to be to suspend judgment until the discovery of clearer specimens '. After my struggles with this legend, perhaps I feel a little glad that even Mr. Hodivala has found the problem difficult. May I say that the much discussed word appears quite clearly at Plate XIII, 1 and 3. I await the correct solution.

R. B. WHITEHEAD.

338. NOTE ON A UNIQUE COPPER COIN OF BARBAK SHAH.

During our tour to Gaur, the ancient capital of Bengal, in Malda District in March, 1934, two copper coins encrusted with verdigris were handed over to me by Mr. N. G. Majumdar, M.A., Superintendent, Archaeological Survey of India. One of the two pieces, when cleaned and deciphered, turned out to be a common type of Husain Shah of Jaunpur, bearing the date H. 872, and the other a rare specimen belonging to Barbak Shah, the 7th Sultan in the line of Iliyas Shah of Bengal. The former was found at a place called Lalbazar in the vicinity of the Gunamant mosque at Gaur, while the latter piece was discovered on the surface of a cultivated field at a short distance to the south of the Dakhil Darwaza. The second coin is the subject matter of this note, and is of unusual interest, being the only known specimen of a copper coin of the Bengal Sultans, after the one mentioned by Mr. Nelson Wright in his Catalogue of the Coins in the Indian Museum, Vol. II, Pt. II, pp. 142-43.¹

It is a common belief that the Sultans of Bengal did not strike any copper issue and that their currency consisted mainly of silver coins with a few gold pieces. H. Blockmann who made an extensive study of this period says, 'The real commerce of the country was carried on in cowries as *no copper was issued*'.² Stanley Lane-Poole also shares the same view and emphatically asserts, 'The Coinage of Bengal, which is of silver, with a few gold pieces, but *no copper*'.³ Mr. Nelson Wright, however, admits the existence of one copper coin issued by some Bengal Sultan and remarks, '*Only one copper* coin exists, and that of *doubtful authenticity*'.³ He does not give any detail of this *doubtful* copper piece. The discovery of the present specimen upsets the above theory and shows that the copper currency was issued by the Bengal Sultans, although on a modest scale, as the demand for it was strictly limited to cowrie shells in the common transaction of business. Mr. K. N. Dikshit, Deputy Director General of Archaeology also holds a similar opinion regarding the paucity of copper currency in the Pala period of Bengal's history, chiefly on the strength of his discovery of a few copper coins and several jars full of cowrie shells, from the Paharpur site. The scarcity of copper coins issued by the Sultans of Bengal may further be explained by the supposition that they may have ordered to strike a small number of copper

¹ *J.A.S.B.*, Vol. XLIV, Pt. I, 1875, p. 288.

² *B.M.C.*, *Muhammadian States*, p. xxxvii.

³ *I.M.C.*, Vol. II, Pt. II, pp. 142-43.

coins as an experimental measure but finding them unpopular for small transactions stopped further issues in this metal.

On the obverse side the coin has the Arabic legend :—

ابوالمجاهد باريكشاه سلطان بن محمود شاه السلطان ٥

(Abul Mujāhid Barbak Shah, the Sultan, son of Mahmud Shah, the Sultan), and on the reverse : *خليفة الله بالحجت و البرهان*. (The viceregent of God with deed and proof.) This sonorous formula as a title was first introduced in his coins by Jalal-uddin Muhammad Shah,¹ the zealous convert Muslim potentate of Bengal (A.D. 1414–1431) and was subsequently followed by his successors on their coins and mural records.

The specimen is well executed and is in an excellent state of preservation. It weighs 76·3 grains, though not conforming to the standard weight of silver issues ranging from 160 to 168 grains, is apparently based on the metrology of the copper issues of Husain Shah of Jaunpur, whose territory was in close proximity to Bengal and whose coins are frequently met with in Gaur and the neighbouring districts.

SHAMSUDDIN AHMED.

¹ *J.A.S.B.*, Vol. XLIII, Pt. I, 1874, p. 294.

The immediate predecessors of the regular Awadh coins are the *Ṣūba* Awadh coins which differ subsequently from the *Muḥammadābād-Banares* issues of the 26th regnal year of *Shāh 'Ālam II*. The arrangement of the obverse legend, the mint marks and the style of the fish on the reverse is quite different.

Beginning with the issues of *Ghāziū d-dīn Haider* the first king of Awadh, we have five couplets on the obverse and the 'Arms of Awadh' in various artistic styles on the reverse. The mint town has several honorific titles and the coinage on the whole is a finished example, based on the standard of the *Mughals*.

While classifying this series in the Provincial Museum Cabinet at Lucknow, I noticed that the mint marks on some of these coins did not tally with those on the Awadh coins of the Indian Museum, Calcutta, included in the 4th volume of the Catalogue of Coins in that Museum. I was, therefore, tempted to examine the collection more closely and revise the 'Table of Mint Marks'. I have thus been able to add eight new mint marks bringing the total to 43. I may add however that most of these appear on the issues of the East India Company struck for circulation in Awadh in the name of *Shāh 'Ālam II*. Out of the 35 marks published so far, as many as 9 appear on the obverse and 10 on the reverse of *Muḥammadābād Banares* series, whereas only 2 appear on the obverse and 4 on the reverse of the *Ṣūba* Awadh issues.

But if we strictly confine ourselves to the regular coinage of the Awadh kings from *Ghāziū-d dīn Haider* in 1818 down to *Wājīd 'Alī Shāh* in 1856 A.D., it is strikingly clear that the number of mint marks dwindled down to a very insignificant figure. A detailed examination shows that *Ghāziū-d-dīn Haider's* coins have only 3 marks on the obverse and none on the reverse. *Nasīru d-dīn Haider's* have 2 for the obverse and none for the reverse. *Muḥammad 'Ālī Shāh*, however, seems to have been very fond of these marks and we find as many as 8 on the obverse and one on the reverse. As against this, the succeeding king, *Amjad 'Ālī Shāh*, has no mint marks at all. The last king, *Wājīd 'Ālī Shāh* used only one mint mark on the obverse.

With the additions now made, King *Ghāziū-d-dīn Haider* has 8, *Nasīru-d-dīn Haider* 2, *Muḥammad 'Ālī Shāh* 10, and *Wājīd 'Ālī Shāh* 2. The coinage of *Amjad 'Ālī Shāh* is conspicuous by the absence of any mint mark. But the most important point is that excepting *Muḥammad 'Ālī Shāh* who has only one mint mark on the reverse, the Awadh kings had no such marks on the reverse of their coins. The significance of these marks, however, is still shrouded in mystery and forms a fascinating subject for study.

PRAYAG DAYAL.

1 	2 	3 	4 	5 	6
7 	8 	9 	10 	11 	12
13 	14 	15 	16 	17 	18
19 	20 	21 	22 	23 	24
25 	26 	27 	28 	29 	30
31 	32 	33 	34 	35 	36
37 	38 	39 	40 	41 	42
43 					



Published Mint Marks.



Un-published " "

TABLE OF MINT-MARKS.

340. THE COUNTESS AMHERST COLLECTION OF ASSAMESE COINS.

In the latter half of July, 1934, among notifications in the daily papers of sales by Sotheby & Co., the well-known London auctioneers, mention was made of the inclusion in a sale of coins, to be held on July 30th, of the 'Countess Amherst Collection of Assamese coins'. Enquiry as to the names of Kings in whose names these coins were struck and the contemporary MS. catalogue that was stated to be included, elicited a list of some 70 coins. Of these 12 were gold: and a cursory perusal of the list showed that a large proportion of the coins were not to be found in the Shillong Cabinet. The importance of this collection lay in the fact that it had apparently been made at the instance of the 1st Earl Amherst who was Governor-General of India from 1823-28: it was in his time that the first Burmese War occurred which ended with the signing of the Treaty of Yandabo in 1826, and the transfer of Assam to the British. There was no time to consult the local authorities in Assam as to whether they would like any bid to be made on their behalf, but as I had to be in London the following week to represent the University of Calcutta at the first Ethnographical and Anthropological Congress, I determined to be present, if possible, at the sale. Two dealers quickly ran the lot up to £22, and when they seemed unwilling to advance any further, I offered an additional 10/- and finally secured the collection for £24.

The accompanying 'Description of Assamese Coins by Dr. Wilson, Calcutta, 1828' seems to have been drawn up at the request of Earl Amherst for his Countess' information just before he returned to England, and—as is shown by the signature at the end of the catalogue—it was prepared by Dr. Horace Hayman Wilson, Secretary of the Asiatic Society of Bengal from 1811-1833. Dr. Wilson's introductory note may be left to speak for itself:—

The condition of Asam from the most remote to the most recent periods is known to us only by a few scattered notices in the mythological or poetical writings of the Hindus to which reference has been occasionally made by Sanskrit Scholars, by accounts of its invasion in the reign of the Musselman Princes of India of which translations have appeared in various periodical collections, and by a brief history derived from original sources by Dr. Buchanan and printed in a Volume published in England under the title of *Annals of Oriental Literature*. The Asiatic Society of Bengal is also possessed of a Manuscript History of Asam from original documents, but too crude and insuffi-

ciently authenticated for present publication. To these sources of information therefore the Coins in the possession of the Countess Amherst form an important accession.

‘From the Hindu writings it appears that at least the western portion of Asam was at an early period Hindu, and the same may be inferred from the names of the main stream, the *Lohit* and *Brahmaputra*, which are Sanskrit terms, implying the Red River, and the son of Brahma, a character the River is fabled to possess. At a comparatively modern date, about the end of the 11th Century, a new people appear to have invaded the Country from the East, and given to it the dynasty and the constitution which existed some time before its occupation by the Burmese which partly led to the late war with Ava. The manuscript states that the Princes and their chief followers came down from heaven, in memory of which event the Rajas of Asam uniformly take the title of *Swerga Deva*, Lord of Paradise or heaven. Buchanan conjectures this might be part of Tibet, and it is evident from the names of the two first Princes *Khun leng* and *Khun lai* as well as the first Rajas of Asam proper, *Sooka-pha*, and his successors *Sootoo-pha*, *Sooben-pha*, and others, that these persons were originally from some of the Indo-Chinese tribes. The first five Coins clear up this difficulty, if the impressions they bear are accurately described as written in the *Shaum* characters, or in that of the people of *Laos*.¹ There are no means of verifying this fact in Calcutta, but there is no reason to question the correctness of information procured upon the spot by so intelligent and enquiring an officer as Captain Neufville. We are therefore authorized to conclude that Asam was subjected to a new form of Government, a

¹ From a copy of the Laos Alphabet, kindly supplied by Sir Denison Ross, it seemed doubtful whether this statement of Dr. Wilson was altogether correct, especially in view of the fact that Laos is so far away from Assam (on the northern borders of Siam and French Indo-China, on both sides of the big bend of the Mekong, S.W. of Luang Prabang).

It was then found on reference to Rai Sahib Golap Chandra Borua's *Ahom-Assamese-English-Dictionary* (Calcutta, 1920, Preface, p. ii) that ‘Ahom belongs to the same sub-group of the Tāi language as Khāmti and Shān. Its alphabet is related to those of Khāmti, Shān and Burmese but it possesses signs for *g*, *gh*, *j*, *jh*, *d*, *dh*, *b*, and *bh*, which are wanting in Khāmti and Shān’. The Rai Sahib further notes (*idem*, p. i) that the Ahoms called themselves *Tāi* (Celestials) ‘by which name the Shāns still designate themselves, and they maintained a fairly continuous intercourse with the inhabitants of the original home until very recent times.’

There seems, however, to be actually some foundation for Dr. Wilson's statement as in the *Encyclopædia Britannica* article on Shāns, it is stated that ‘the Tāi language may be divided into two sub-groups, the North and the South. The South includes Siamese, Lao, Lū, and Hkūn, the North the three forms of Shān, namely North Burmese Shān, South Burmese Shān, and Chinese Shān with Hkāmti and Āhōm.’

new race of Princes and a new religion imported from Laos, towards the close of the Eleventh Century. The return of the Princes to the Hindu faith as latterly professed is shewn by the Coins.'

The Capt. Neufville referred to in Dr. Wilson's note had in 1828 just been appointed Assistant for Upper Assam to David Scott, the Agent to the Governor-General for North Eastern India. Capt. Neufville—as noted in Gait's History of Assam—had distinguished himself as Intelligence Officer in the late Burmese War, and, in addition to his political work, was also Commandant of the Assam Light Infantry. It is certain that a man in Capt. Neufville's position would have every facility of making a good collection of the local currency, if he so desired, and from the mention of his name by Dr. Wilson, it seems possible that the collection now to be described was actually made by Capt. Neufville for presentation to the wife of his Governor-General, who had, only two years previously, on the successful conclusion of the Burmese War, been advanced to the rank of Earl Amherst of Arakan.

The collection was found to consist actually of 12 Gold coins and 72 Silver coins, all with three exceptions—a Kuch-Bihār $\frac{1}{2}$ -Rupee, a small gold coin from the Yemen, and a French East India Company's 2-anna piece—Assamese coins: and comparison with Dr. Wilson's list showed only the following discrepancies:—

1. The collection now includes a Rupee of Śiva Simha, dated 1638 Śāke.
2. On the other hand a Rupee of Rājeśvara Simha, dated 1670 Ś. is missing.
3. The $\frac{1}{16}$ -Rupee of Gaurinātha Simha listed by Dr. Wilson was not found. Instead, however, the following was found:—
4. $\frac{1}{16}$ -Rupee of Brajanātha Simha (which suggests that Gaurinātha was misread for Brajanātha).
5. A $\frac{1}{16}$ -Rupee of Chandra Kānta Simha is not listed.
6. The $\frac{1}{2}$ -Rupee of a Koch King is also not mentioned; as is also the case with:—
7. The $\frac{1}{8}$ -Dīnār of the Imām Al-Māhdi of Ṣan'ā', Yemen.

Finally:—

- 8-10. Three unlisted Gold coins of Gaurinātha (viz. $\frac{1}{3}$ -Mohur, $\frac{1}{8}$ -Mohur and $\frac{1}{32}$ -Mohur) were also found in the Collection.

No. 1 may have been exchanged with some one for No. 2, but the presence of Nos. 5-10 show that a few additional coins were added to the Countess' collection, after Dr. Wilson was given the opportunity of describing the coins found in it in 1828.

The following is an analysis of the Collection as it stood when purchased—a X being added in the case of those coins that are not mentioned in Mr. A. W. Botham's 1930 (2nd) edition of the 'Catalogue of the Provincial Coin Cabinet, Assam'. The dates mentioned being in the *Śāka* era, 78 has to be added in each case to bring them to the corresponding date in the Christian era :—

Name of King.	Gold.	Silver.
Chakradhvaja Siṃha	....	1 (Re. 1585 S. = 1663 A.D.).
Gadādhara Siṃha ..	....	5 (Rs. Ahom script, dated <i>Raisān</i> = 1681 S.) XX.
Rudra Siṃha ..	1 (Mohur : 1620 S.) X	2 (Rs. 1623 and 1635).
Śiva Siṃha ..	....	2 (Rs. 1637 and 1638).
Śiva Siṃha and Queen Phuleśvari.	....	1 (Re. 1646) X.
Śiva Siṃha and Queen Ambikā.	1 (Mohur of 1657 and Regnal Year 22) X.	2 (Rs. 1654, R.Y. 19, and 1657, R.Y. 21).
Śiva Siṃha and Sarveśvari.	....	1 ($\frac{1}{2}$ -Re. R.Y. 24) X.
Pramatta Siṃha ..	....	2 ($\frac{1}{4}$ -Rs. R.Y.'s 23 and 24, No <i>Śāka</i> date) XX.
		1 (Re. of 1664 and R.Y. 29) X.
		2 (Rs. 1670 X and 1672).
		2 ($\frac{1}{2}$ -Rs. undated).
Rājeśvara Siṃha ..	1 (Mohur, 1688) X	2 ($\frac{1}{4}$ -Rs. both 1670).
		4 (Rs. : 2 in Devanāgarī script of 1675, 1 in Persian script of 1685, and 1 of 1686).
		2 ($\frac{1}{2}$ -Rs. undated, one in Devanāgarī script) XX.
		1 ($\frac{1}{4}$ -Re. of 1689) X.
Lakshmī Siṃha ..	2 (Mohur, 1701 X : $\frac{1}{4}$ -M. 1697 X).	2 (Rs. 1696 and 1700 X).
		2 ($\frac{1}{2}$ -Rs. undated) X.
		2 ($\frac{1}{4}$ -Rs. 1699 and 1701) X.
Gaurinātha Siṃha ..	4 (Mohur 1716, R.Y. 1 X (?) : $\frac{1}{2}$ -M. undated X : $\frac{1}{8}$ -M. „ X : $\frac{1}{32}$ -M. „ X).	2 (Rs. 1705 : and 1716 X (?)).
		2 ($\frac{1}{4}$ -Rs. both 1716 but one with R.Y. 1 under date) XX.
		2 ($\frac{1}{16}$ -Re. undated) XX.
Bharatha Siṃha ..	....	2 ($\frac{1}{2}$ -Rs. undated) X.
		2 ($\frac{1}{2}$ -Rs. 1714, 1719) XX.
Sarvānanda Siṃha ..	....	2 (Rs. both 1716) X.
		1 ($\frac{1}{2}$ -Re. undated) X.

Name of King.	Gold.	Silver.
Kamaleśvara Siṃha .. Chandrakānta Siṃha ..	1 ($\frac{1}{4}$ -M. undated) X	2 ($\frac{1}{4}$ -Rs. undated) X. 2 (Rs. both 1741) X. 2 ($\frac{1}{4}$ -Rs. undated) X. 2 ($\frac{1}{4}$ -Rs. 1741, 1742) XX.
Brajanātha Siṃha ..	1 ($\frac{1}{2}$ -M. undated) X..	1 ($\frac{1}{32}$ -Re. undated) X. 2 (Rs. both 1740) XX. 2 ($\frac{1}{4}$ -Rs. undated) XX. 2 ($\frac{1}{4}$ -Rs. 1739, 1740) XX.
Jogeśvara Siṃha ..	....	1 ($\frac{1}{16}$ -Re. undated). 2 ($\frac{1}{4}$ -Rs. undated). 2 ($\frac{1}{4}$ -Rs. both 1743) XX.
Total Assamese Coins	11 : 10—or possibly all 11—not in Shillong Cabinet.	70 (37 or possibly 38 new).
Rājendra Nārāyaṇ (of Kuch-Bihār). French E.I. Coy. .. Al-Māhdi, Imām of Ṣan'ā', Yemen.	.... .... 1 ($\frac{1}{4}$ -Dīnār) ..	1 ($\frac{1}{2}$ -Re. undated). 1 ($\frac{1}{8}$ -Re.)
Grand Total ..	12 Gold ..	72 Silver.

Efforts were also made, after the Amherst collection had been catalogued, to increase still further (by exchange, gift, or, in one case, by purchase) the number of coins not previously included in the Shillong Cabinet, with the result that the following additional coins have now been added :—

1. Jayadhvaja Siṃha .. Re. of 1570 *S.* (Slight variation of previous Shillong specimen).
2. Rudra .. Re. of 1624.
3. Śiva Siṃha and Ambikā.. Re. of 1657 R.Y. 21. (Slight variation of previous Shillong specimen.)
4. Gaurinātha Siṃha .. Re. of 171(8?).
5. " " .. Re. of *Śāke* 120 (*sic.*!).
6. " " .. $\frac{1}{2}$ -Re. of R.Y. 7.
7. " " .. $\frac{1}{2}$ -Re. Mint Mark *Ṛ* (*Disai*). (Slight variation of previous Shillong specimen.)
8. Bharatha .. Re. of 1715.
9. Brajanātha .. Mohur of 1739.
10. Rājadhara Mānikya Deva .. Re. of 1707 *S.* (= 1785 A.D.).
of Tipperah.
11. Chaurajit Siṃha of Manipur Re. of 1734 *S.* (= 1812 A.D.).

Nos. 1, 8 and 10 were obtained by the generous co-operation of Mr. J. Allan, Keeper of Coins and Medals, British Museum.

Details of the coins now in the Collection that have not hitherto found a place in the Shillong Catalogue.

SUPĀTPHĀ *alias* GADĀDHARA SĪMHA.

(1603–1618 Śāka=1681–1696 A.D.)

Striking of fresh coinage with each New Year did not start in Assam till the accession of Gadādhara's son, Rudra Sīmha, in 1618 Śāka (=1696 A.D.), and all the 5 Gadādhara Rupees in Ahom script found in the Amherst collection are only variations of those struck by this King in his accession year *Raisān*, or the 33rd year of the 19th *tāosiñā* (cycle of 60 years current in Assam),¹ viz. 1603 Śāka. Except for trifling differences, three of them correspond to Nos. 1 and 4 in the Shillong Catalogue, but the other two are new, being distinguished by having no Dragon or Peacock on either face, nor, indeed, any other ornamentation, such as the segments and dots found on the Reverse of S.C. No. 2. Though their inscriptions are the same as those on other coins of Gadādhara, these two coins are struck from differently sized dies, and instead of the Reverse being, as in most Assamese coins of later Kings, at 180° to the Obverse, in the first it is struck without inverting the blank, while in the second the Reverse is struck at right angles to the Obverse.

Dr. Wilson was evidently unable to make anything of the inscriptions on these coins, and moreover was misled by someone as regards both their attribution and date, as may be gathered from what follows :—

‘These are the coins of the ancient Rajas, inscribed with characters not known in Calcutta. One is unappropriated. The other four are thus described :—

1 of Soobenpha—in the 13th Century.

1 of Sootoophā—,, ,, ,, ,,

1 of Soopatpha—,, ,, ,, ,,

1 of Soohompha—in the beginning of the 16th Century.’²

In his subsequent notes on the 1585 Ś. coin of Chakradhvaja Sīmha, Dr. Wilson draws a parallel between the meaning of the name of this King, viz. ‘He whose mark or symbol, or, if it may be so rendered, armorial bearing, is the Discus’, that

¹ Starting from 568 A.D., the reputed date of the descent from heaven of the two brothers Khunlung and Khunlai, the legendary first Ahom Kings. The change-over to Śāka era was probably due to Rudra Sīmha.

² Sukāphā, the tribal chief who led the Ahoms in 1228 A.D. over the Pātākāi Pass into what is now Assam, is said to have been succeeded in 1268 A.D. by his son Suteuphā, who in turn was followed 13 years later by his son Subinphā. Soohompha is presumably Sukhāmphā, who ruled from 1552 to 1603 A.D. and was the son of Sukleimūn, the first Ahom ruler to strike coins; while, as we have already seen, Supātpāh, or Gadādhara Sīmha, did not come to the throne till 1681 A.D.

weapon being one of the distinguishing marks of the Hindu Deity Vishnu, and that of Gadādhara 'The Holder of the Mace', which is also an epithet of Vishnu. He adds: 'The manuscript, and Buchanan, refer the introduction of the Hindu faith to *Gadādhara Siṃha* and do not mention the Prince whose coin is here noticed. Buchanan states also that no coin of *Gadādhara* was found by him'. Dr. Wilson could not make up his mind whether the two names referred to the same individual, or whether (as we now know to be the case) Chakradhvaja was one of Gadādhara's predecessors on the throne of Assam.

RUDRA SĪMHA.

(1618–1636 *Śāka* = 1696–1714 A.D.)

As noted in a previous paper (*J.A.S.B.*, 1910, p. 632) no specimens of this King's Ahom coinage under his Ahom name SUKRUṆPHĀ ('The Awe-Inspiring Tiger of Heaven') which was presumably struck on his accession to the throne in 1618 *Ś.* have hitherto come to light, but coins in Sanskrit are known for this and every subsequent year of his reign down to 1636—the year in which he died. The Amherst collection fortunately included a specimen of the only Gold coin of this King that is known to have been struck, viz. of the year 1620 *Ś.*; and the series of Rupees in the Shillong Cabinet has since been further supplemented by a specimen of the very rare Rupee of 1624, of which previously only two other specimens were known to exist.

A distinct change in religious cult—from Vaishnavism to Saivism—is evident from the invocation of Hara and Gauri on the Reverse of Rudra Sīmha's coins. The legends on the Mohur only differ from those on the Rupees of 1618 and 1620 in the *dra* of *Rudra* being transferred from the end of the 2nd line of the Obverse to the beginning of the 3rd, but the Dragon at the bottom of the Obverse also faces *left* instead of right. There is no other ornamentation on either face. This coin closely resembles that of the Mohur in the possession of Mr. Botham that was figured as No. 1, Pl. XXVII, of the writer's paper already referred to, but is a much better specimen.

ŚIVA SĪMHA.

1. ŚIVA SĪMHA alone : 1636–46 *Śāka* : 1650 *Ś.* (?) : 1654 *Ś.* (R.Y. 18) and 1659–61 *Ś.* (R.Ys. 24 and 25).
2. ŚIVA SĪMHA with Queen PHULEŚVARĪ : 1646–50 *Ś.*
- 2a. ŚIVA SĪMHA with (the same Queen after she had changed her name to) PRAMATHEŚVARĪ : 1649–1653 *Ś.*
3. ŚIVA SĪMHA, with Queen AMBIKĀ : 1654 *Ś.* (R.Y. 19)—1659 *Ś.* (R.Y. 24).

4. ŚIVA SIMHA, with Queen SARVEŚVARI: 1661 Ś. (R.Y. 25)—1666 Ś. (R.Y. 31).

Total duration of reign: 1636–1666 Ś. = 1714–1744 A.D.

The previously unrecorded coins of this King from the Amherst Collection include the following specimens:—

With Queen PHULEŚVARI. A Rupee of 1646 (no R.Y.) that differs from S.C. No. 19 in having what is apparently intended to be a flower to the right of the *Hā* at the end of l.(1) of Reverse.

With Queen AMBIKĀ. Several novel coins struck by Śiva Simha jointly with this Queen have now been added to the Shillong collection. The principal one of these is a Mohur (from the Amherst Collection), dated 1658 (and R.Y. 22) which, however, seems to have been struck from the same die as S.C. No. 45—a rupee of the same year. A rupee of the previous year (and R.Y. 21) has also been secured by exchange. This differs from the Shillong specimen of the same date in having no ornamentation, except the Dragon to R. at bottom of Obverse, in which respect it follows the coins of 1654–6. Lastly, a $\frac{1}{2}$ -Rupee and $\frac{1}{4}$ -Rupee—each with R.Y. 24—not only have the distinction of being examples of the coinage struck in the last year of this Queen's life, but have ornamentation in the form of animals that differentiate them from other coins of the same Queen. The inscriptions on the $\frac{1}{2}$ -rupee are found in S.C. No. 38, except for 24 (instead of 19) appearing as the R.Y. at the bottom of the Reverse. There is no ornamentation on the Reverse; but on the Obverse there is a Dragon (running to left but with head turned backwards) at the bottom, while a rosette of 7 dots appears below the *Śi* at the end of the first line. In the $\frac{1}{4}$ -rupee the inscriptions are the same as in S.C. No. 39, except for the R.Y. being 24 instead of 19; but the ornamentation is different. On the Obverse we again find the rosette of 7 dots below the *Śi* (of Śiva) while on the Reverse, along side 6, i.e. to the right of the R.Y., a Deer is shown running upwards to the Right, but with head turned backwards. (For reproduction of these two coins, *vide* Pl. 5, Nos. 1 and 2.)

A discussion of the reasons why Śiva Simha alone among Assamese Kings permitted the names of his Queens to appear on the coinage will be found on pp. 634–5 of the writer's 1910 paper already referred to; but the following extract from Dr. Wilson's 'Description' deserves quotation, as Buchanan's evidence—even though it is second hand, being based on some Assamese chronicle—does not appear to have been previously utilized in dealing with the question:—

'Buchanan states that this [appearance of Queens' names on the coinage] arose from a plot to deprive the Prince of real power, and administer the Government through the agency of females. It was foretold soon after

his accession that his reign would be short, and that he would be deprived of all power before his death. To evade this prophecy it was suggested that the attribute of sovereignty should be transferred to his queens, several of whom were accordingly placed in succession upon the throne, to whom Śiva Siṅh yielded nominally his authority; the real authority being engrossed by his Ministers.'

RAJĒŚVARA SIṂHA.

(1673¹–1691 *Śāka*=1751–1769 A.D.)

A third² specimen of a Mohur struck in 1688 was found among the Amherst coins and is a useful addition to the Shillong collection (which already had a Quarter-Mohur of the same year). The inscriptions are the same as in the rupee of 1688, and the ornamentation is also probably the same as in that coin. From the Mohur, however, it would appear that the 'indistinct dots' mentioned at the left of the Dragon at bottom of Obverse of the 1688 rupee are really another segment and 5 dots. Besides a variant of the $\frac{1}{4}$ -Re. of 1689, there are also two undated half-rupees with different ornamentation from any of the other half-rupees at Shillong. One of these (figured as No. 3, Pl. 5) is in Devanāgarī script, which suggests that it possibly dates from 1675, the year in which Rājēśvara struck rupees in this script. (*vide* S.C. No. 6.)

LAKSHMI SIṂHA.

(1691³–1702 *Śāka*=1769–1780 A.D.)

A Mohur of 1701 *Ś.* and a $\frac{1}{2}$ -M. of 1697—both previously unrecorded—were found among the Amherst coins. The former resembles the Rupee of 1700; while the latter only differs from the $\frac{1}{4}$ -M. of 1692 (S.C. No. 2) in the date and in having a dot within the crescent above the *Śāka* on Reverse.

Other coins, not previously in the Shillong Cabinet, are a Rupee of 1700, which helps towards filling up a gap in the

¹ A Mohur in Ahom script was struck in this year. No coins of Rājēśvara later than 1690 are known.

² The two previously known are in the cabinets of the British Museum and Mr. Botham.

³ Except possibly for the $\frac{1}{4}$ -Re. with R.Y. 1 subsequently mentioned, no coins of 1691 *Ś.* struck in the name of Lakshmi Siṁha are known. This was probably due to a controversy as to who should succeed Rājēśvara (*vide*, *J.A.S.B.*, 1910, p. 637); and Lakshmi may not have been formally installed till the following year, after the defeat and death of a usurper called Rāma Kānta, who was proclaimed King by the rebel Moāmariās (Vaishnavas), and is said to have struck coins in 1691 *Ś.* From the absence of coins for Rājēśvara's last year, this rebellion may have begun even before the latter's death.

Shillong series of the later years of Lakshmi, and apparently resembles the Re. of 1698 (S.C. No. 21); and an undated $\frac{1}{4}$ -Re., which resembles S.C. No. 1 in having no ornamentation on either side, but differs from it in not having a R.Y. 1 at the bottom of the Reverse. This may constitute the only known example of coinage in the first year of Lakshmi Simha's reign.

GAURINĀTHA SIMHA.

(1702–1718 *Śāka*=1780–1796 A.D.)

The troubles with the Vaishnava Moāmariās that had occurred at the beginning of Lakshmi Simha's reign broke out again shortly after the accession to the throne of Assam of his son Gaurinātha, and after four years strife, Gaurinātha was compelled in 1708 *Ś.* to leave his capital at Rangpur and take refuge in Gauhati. A reflection of this trouble is shown by the almost complete cessation of Gaurinātha's coinage between 1709 and 1716, and the issue of coins in the name of Bharatha Simha, the Moāmariā leader, at Rangpur. At the end of 1792 A.D. (1714 *Ś.*) Gaurinātha had even to leave Gauhati, and sought refuge with Captain Welsh, the Commander of the British forces in Goālpārā. The latter had already received instructions from Lord Cornwallis, who was then Governor-General, to assist Gaurinātha in ejecting from Assam the Bengali and Hindustani mercenaries of Krishna Nārāyaṇ, whose father—the Raja of Darrang—Gaurinātha had murdered, and after Gauhati was retaken, Capt. Welsh began to make arrangements for advancing still further into Upper Assam. In January, 1794 A.D., Gaurinātha also applied to the Governor-General for the permanent retention of British troops in Assam, offering to pay Rs. 3 lakhs annually for their maintenance; and when, in the course of the subsequent expedition, Rangpur was recaptured in the following March, and Gaurinātha re-installed as King, in token of his indebtedness to the British, he issued coins bearing the *Śāka* date 1716, and R.Y. 1.

A change in the post of Governor-General had however occurred in December, 1793—Sir John Shore taking the place of Lord Cornwallis; and, owing to the new Governor-General having decided on a policy of non-interference in affairs outside of British India, Capt. Welsh was ordered in the following April to stop all further offensive operations against Gaurinātha's enemies, the Moāmariās, and to withdraw his troops into British territory. This evacuation was completed by the first week in July, 1794. The immediate result was that the Moāmariās—who had been repeatedly defeated by Capt. Welsh's troops—again reoccupied Rangpur, while the effect on Gaurinātha of the withdrawal of the British is also indicated by the change in Regnal Year to 16 (instead of 2) on some of the coins struck in 1717 *Ś.* Chaos

again ruled in Assam for the following $1\frac{1}{2}$ years, at the end of which time Gaurinātha died on December 15th, 1795. This date is confirmed by there being no authentic coins of later date than 1717 Ś.—a year which ended on April 9th, 1796.

As already noted, the Gold coins of Gaurinātha in the Amherst collection include a Mohur of 1716 (with R.Y. 1 at bottom of Reverse), an undated $\frac{1}{2}$ -Mohur, a $\frac{1}{3}$ -Mohur and a $\frac{1}{3}\frac{1}{2}$ -Mohur. The Mohur may be identical with S.C. No. 38 (if the latter has no ornamentation on Reverse). The $\frac{1}{3}$ -Mohur has the same inscription as the $\frac{1}{2}$ -Re. catalogued as S.C. No. 1, but with no R.Y. (or date) on Reverse. There is no ornamentation on either side. The inscription on the $\frac{1}{3}$ -M. is the same as in the $\frac{1}{3}$ -Rs. (S.C. Nos. 80-2), with a group of 3 dots at angle 8 and two other similar groups below the second line of Obverse. The Reverse is devoid of ornamentation. The $\frac{1}{3}\frac{1}{2}$ -M. has the same inscription as in S.C. No. 88, which has a group of 3 dots to the right—not left, as in the Amherst specimen—of the Śrī on Obverse.

The Rupees that are new to the Shillong Cabinet include the following :—

(1) Re. of 1716 and R.Y. 1, with inscription as in the Mohur already described. The Reverse differs in having a ₹ below the bottom line, as well as a group of 5 dots at angle 2, two groups of 3 dots each above the second Śrī and Har of Hara respectively, and a third group of 3 dots between the upper portions of the Ha and ra in the first line.

(2) A crudely-struck Re. of Śāke 171 (?? 8) (?? R.Y. 7) —vide Pl. 5, No. 4). Inscription as in Mohur, and all Rs. from 1707 onwards to end of reign, e.g. S.C. No. 18. Ornamentation :—

Obverse.

Reverse.

- | | |
|---|---|
| (a) Segment of 3 dots at side 2. | Segment of 3 dots at beginning, |
| (b) Dragon at bottom degraded to two groups of 2 dots each and a tail under date to R., so that the Dragon seems to have faced L. | and inclined line of 3 dots at end of first line. |
| (c) To extreme L. of bottom (side 4) a triangular sign which may have been intended to represent the head of an Assamese 7. | |

It is difficult to make any useful comments on the date of this coin for—as has already been stated—Gaurinātha died several months before the close of Śāka 1717, and there is no sign of a 1 before the triangle that may have been intended for a 7 of the R.Y. On the other hand, it is clear that the other numerals were intended to indicate some year in the second decade of the 18th Śāka century. The coin was bought by Sir R. Burn at Ghāzipur, U.P., and obtained from him by exchange.

(3) Crudely struck Re. with unusual arrangement of inscriptions and strange date (*vide* Pl. 5, No. 5).

Obverse.

- (1) *Srī Srī Svarga.*
 (2) *Deva Srī Gaurī.*
 (3) *nātha Śimha nripa-*
 (4) *śya Sāke* 120.

Dragon to L. at bottom. Group of 5 (?) dots at angle 2, and (?) semicircle of 4 dots at angle 4—in front of Dragon.

Reverse.

- (1) *Srī Srī Hara*
 (2) *Gaurī charanāra.*
 (3) *binda makaranda ma-*
 (4) *dhu karasya.*

Apparently no ornamentation.

Suggestions as to the precise meaning of the date as shown on this coin are invited from students of Assamese history and numismatics. It cannot be intended as a date in a new era commencing from the accession of Gadādhara Śimha in 1603 Ś. as that would bring the date of the striking of the coin later than the death of Gaurinātha in 1717 Ś. The coin reached the writer from Jorhāt and was obtained from him by exchange.

In addition to the above-mentioned coins, two new $\frac{1}{2}$ -Rs. were obtained by exchange; the two $\frac{1}{4}$ -Rs. of 1716—one with R.Y. 1—in the Amherst collection are different from those already in the Shillong Cabinet; and the two $\frac{1}{16}$ -Rs. found in the collection were also previously undescribed. For details the supplementary catalogue of these coins at Shillong may be consulted.

BHARATHA ŚIMHA, Rājā of Rangpur.

(1713–1715 and 1718–19 Śāka=1791–3 and 1796–7 A.D.)

Bharatha was leader of the Moāmariās who drove Gaurinātha from his capital, Rangpur, in 1708 or 9 Ś. Coins struck by him in 1713 Ś. are rare, the only ones recorded up to now being a Rupee in the British Museum and a $\frac{1}{4}$ -Re. in Mr. Botham's cabinet; and, previous to the purchase of the Amherst collection, the Shillong Cabinet did not possess a single coin struck by Bharatha Śimha during the period before Gaurinātha was reinstated by Capt. Welsh. The Amherst Collection was found to include a $\frac{1}{4}$ -Re., dated 1714 Ś.: and a Rupee of 1715 Ś. was obtained by exchange with the British Museum. The latter only differs from S.C. No. 1 (a Re. of 1718 Ś.) in the date, and details of ornamentation; but no $\frac{1}{4}$ -Re. of 1714 Ś. seems to have been previously noted, and the coin has therefore been reproduced on Pl. 5, (No. 6). Except for date, the inscription is the same as that of the $\frac{1}{4}$ -Re. of 1715 Ś. in the British Museum, which was described by Allan on p. 328 of his 1909 paper in the 'Numismatic Chronicle' and illustrated as No. 8, Pl. XXV, of the same paper; but the ornamentation of the Reverse of the two coins is very different. In the Amherst specimen, this consists of segments of circles at sides 1, 3 and 7; a segment

and 4 dots at side 5 ; a knob-ended cross between the 7 and initial figure of the date ; and, finally, single dots over (1) the ☸ of Śāka ; (2) before the initial figure of the date ; (3) between the initial and second figures ; and (4) between the second and third figures. The last three form a triangle, with the broadest side uppermost. As regards the Obverse, the single dot at the beginning of the first line in the B.M. specimen is missing in the Amherst coin, so that its obverse is entirely devoid of ornamentation.

The Amherst Collection also included a $\frac{1}{4}$ -Re. struck by Bharatha in 1719 Ś. which, like that of 1714, has not previously been recorded. The inscriptions are identical, but the ornamentation found on both sides differentiates the 1719 coin from those of either 1714 or 1715. On the obverse there are 2 dots at angle 2 and 3, in a convex line, at angle 7, i.e. at the beginning and end of the first line. The Reverse has a segment and 5 dots at side 1 ; a group of 4 dots at side 3 ; and groups of 3 dots at angles 2 and 6, and sides 2, 4, 5 and 8.

Of the two $\frac{1}{2}$ -Rs. found in the Collection, one is identical with S.C. No. 3, and has no ornamentation on either side ; while the other differs in having on the Obverse a group of 3 dots at the beginning and end of the first line (i.e. angles 2 and 7) as well as one at angle 3 ; and between the second and third lines there is a row of well-separated single dots. On the Reverse, a group of 3 dots is found at angle 2, and a single dot below the second *pa* of 1.2. The reverse is twisted left by one sector (45°) from the usual position of 180° to the Obverse.

Dr. Wilson makes the following remarks at the end of his description of Bharatha Simha's coins :—

‘ This was the first Prince set up by the followers of the Mahamari,¹ and the Legend on his coins explains the nature of the disputes that agitated Asam. It was a religious contest, between the worshippers of Śiva and Vishnu. The ruling dynasty was all along attached to the former, but in the coins of Bharata and Sarvananda, the name of Krishna is substituted for those of Hara and Gauri. Bharata was reduced to submission by the English detachment and pardoned in 1793. After Captain Welsh's departure, he again assumed sovereign power as appears from No. 4 [the $\frac{1}{4}$ -Re. of Śāka 1719=A.D. 1796-7], and, as

¹ *Sic.* Dr. Wilson apparently thought the Moāmariās were followers of a ‘ spiritual chief entitled the Maha Mari’. For possible derivations of the name *vide* Gait (*op. cit.*, 1906 ed., p. 58).

No coins of Bharatha Simha later than those of 1796-7 A.D. are known, so possibly the rebellion and death of ‘ Bharati Raja ’ of Bengmara, mentioned by Gait (*idem*, p. 216) as having occurred in 1799, after Kamaleśvara Simha's accession, may—if the date is correct—refer to yet another revolt by his successor in the leadership of the Moāmariās (? Bharatha Simha's son).

Buchanan states, was shortly afterwards taken and put to death by the Minister of Gaurināth.'

SARVĀNANDA SĪMHA, Rājā of Matak.

((?) 1715-7 Śāka=(?) 1793-5 A.D.)

This temporary usurper of the throne of Assam towards the end of the reign of Gaurinātha was Vaishnava leader of the Morāns—a Bodo tribe that the Ahoms found in possession of the hinterland to the modern town of Dibrugarh, when they entered Assam at the beginning of the 13th century A.D. and with whom they intermingled.

Sarvānanda's capital was Bengmara, 10 miles east of Dibrugarh, and he only seems to have struck coins in 1716 and 1717 Ś.¹ Three of his coins were found in the Amherst Collection, two of them being Rupees of the date 1716. One of these is identical with S.C. No. 1, while the other is similar in inscription to the rupee of 1717 in the Shillong Cabinet. It differs, however, in the ornamentation of both Obverse and Reverse. On the Obverse (besides the Dragon to L.) there is a square of 4 dots between Śāke and date. On the Reverse, in addition to the dot and crescent over the *padma* of l. (2) there are groups of 3 dots at angles 6 and 7, as well as single dots (*a*) above and below the first *pa*; (*b*) below the *dva* in l. (2); and (*c*) below the initial *ma* in l. (3).

The third coin is an undated ½-Re. which is similar in inscription to S.C. No. 6, but differs from it is not even having the 3 dots of ornamentation at angle 2 of the Reverse.

The Morāns appear to have again revolted under the leadership of Sarvānanda at Bengmara in the reign of Gaurinātha's successor, Kamaleśvara Sīmha, in 1727 Ś. (=1805 A.D.),² but as the rebellion was quickly suppressed, possibly there was little chance of Sarvānanda having been able to strike coins on this occasion. The Morāns however continued to enjoy semi-independence, and for 16 years after the transfer of the suzerainty of Assam to the British by the treaty of Yandabo in 1826 A.D. Matak was not included in British India (Gait, *op. cit.*, pp. 285-6 and 306).

The 1727 Ś. revolt of the Morāns is otherwise noteworthy for the fact that, while it was in progress, Burmese aid was invited by the rebels in their struggle against their overlord. It is true that the two parties who came did not stop long in Assam, but the visits must have resulted in valuable information being taken back to Ava, and so contributed a decade later to the

¹ The White King coin, mentioned by Allan (*op. cit.*, p. 328, n. 14) as having the date 1715 Ś. is not among the Assamese coins of Sir R. Burn, who purchased this portion of the White King collection.

² *Vide* Gait, *op. cit.*, p. 218.

decision of the Burmese monarch to take an active part in Assamese affairs.

KAMALEŚVARA SĪMHA.

(1717-1732 Śāka=1795-1810 A.D.)

As is suggested by the fact that the only dated coins struck in this reign are all of the same year 1720 Ś., i.e., 3 years after Kamaleśvara being placed on the throne of Assam, he was merely a puppet King, appointed by Gaurinātha's *Burha Gohain*, or Prime Minister, and content to leave all affairs of State in his Minister's capable hands. The scarcity of coins struck in Kamaleśvara's name is probably also an indication of the constant revolts that occurred during the first ten years after Gaurinātha's death. Two of these have already been referred to, viz. : the renewed rebellions of Bharatha Sīmha in 1718-19 Ś. and of Sarvānanda in 1727.

Previous to the discovery of the Amherst collection, the only known coins of Kamaleśvara were two Mohurs of 1720 (in the cabinets of Mr. Botham and Sir Richard Burn respectively), a few rupees of the same year, and a few undated $\frac{1}{2}$ - and $\frac{1}{8}$ -Rupees. Of the three Amherst coins, one is an undated $\frac{1}{2}$ -Re. apparently identical with S.C. No. 2, the second a previously undescribed and undated $\frac{1}{2}$ -Re. which has the same inscription as the last-named coin, but differs from it in having, as ornamentation of the Obverse, three groups of 3 dots each at the beginning and end of the first line and over the second *Śrī* (instead of being entirely devoid of ornamentation on this face); while the third is a new $\frac{1}{8}$ -Mohur. The inscription on the faces of this coin is the same as in the $\frac{1}{8}$ -Re. described under S.C. No. 3, but differs from it in having as ornamentation on the Obverse a rosette of 5 dots at the bottom (instead of a group of 3 dots) and on the Reverse only 2 (or 3) dots between the initial syllables of ll. (1) and (2), instead of the five small groups of dots found in the Shillong specimen.

CHANDRAKĀNTA SĪMHA.

(1732-1740 Śāka=1810-18 A.D.; restored by the Burmese in 1741 Ś.=1819 A.D.; fled to Bengal the following year.)

On Kamaleśvara's death from smallpox in 1810 A.D. the *Burha Gohain* placed Kamaleśvara's younger brother Chandrakānta on the throne; and the fact that the latter was still only a youth at the time may be one of the reasons for the complete absence of any coins bearing his name, for the first period of his nominal rule—even after the first Burmese invasion in 1816-7 A.D. and the *Burha Gohain*'s death. The latter's successor in office evidently continued to regard Chandrakānta as a puppet King, and when, less than a year later, the new Minister was

assassinated and the late Burha Gohain's son took his place, the first step he took was to depose Chandrakānta, and to place a grandson (or great-grandson) of Rajeśvara Simha, named Brajanātha on the throne. News of this having been communicated to Burma, another Burmese army was sent to reinstate Chandrakānta, and for the next two years—1741 and 1742 Ś.—coins were struck in his name. Chandrakānta, however, soon found that he had even less authority under the Burmese Generals than with Ministers of his own race, and in the following year he fled to British territory. There he raised bands of mercenaries, with which for some time he carried out unsuccessful raids against the Burmese. This led to counter-raids by the Burmese into British territory, which ultimately forced the British to intervene in Assamese affairs. After the conclusion of the Burmese war, Assam for 6 or 7 years was administered as British territory, and when finally it was decided to try the experiment of again placing Upper Assam under Assamese rule, Chandrakānta was not considered the best candidate for the headship of the new State, and Purandar, a son of Brajanātha Simha, was selected instead of him.

The Amherst coins of this King include two similar Rupees of 1741 Ś. with the same inscriptions as those found on the two Shillong varieties of this year, but differing from both of them in having on the Obverse no group of dots either between the beginnings of ll. (2) and (3), or near the Dragon; while on the Reverse there is no group of dots above the top line, and that between the beginnings of ll. (3) and (4) is differently placed. There are two $\frac{1}{4}$ -Rs. of 1741 and 1742 Ś. respectively, neither of which is found in the Shillong Cabinet. The latter date is noteworthy, as previously the only known coins of 1742 were a Rupee and $\frac{1}{4}$ -Re.—both in Mr. Botham's Cabinet. The remaining three coins include two similar undated $\frac{1}{2}$ -Rs. (with the same inscriptions as on S.C. Nos. 3-5, but differing in the details of ornamentation); and a $\frac{1}{32}$ -Re. which has the same inscription as that of the $\frac{1}{16}$ -Re. catalogued as S.C. No. 8, but is again different in ornamentation from the latter, both as regards Obverse and Reverse.

BRAJANĀTHA SIMHA.

(1739-40 Śāka=1818 A.D.)

The circumstances through which Chandrakānta was superseded by this Prince have already been mentioned, and from the comparatively large number of Brajanātha's coins that are found in various Cabinets it might be concluded that he remained on the throne for at least as long as his predecessor. He appears, however, to have only reigned for about 3 months at the end of 1739 Ś. and the beginning of the following Śāka year, or, in other words, from February to April or May,

1818 A.D.¹ The *Buranjis* (Assamese Chronicles) state that Brajanātha was then replaced by his son Purandar Sirhha on the excuse that he was ineligible, under Ahom custom, to be King, owing to this having suffered some sort of mutilation.² In any case, nothing more is heard of him.

An undated Half-Mohur of Brajanātha, which is apparently the first to be recorded, was found in the Amherst Collection. The inscriptions are the same as in the $\frac{1}{2}$ -Rs. (e.g. S.C. Nos. 6-8). The ornamentation of the Obverse is a semicircle and dot over the second *Śrī*, and a group of 3 dots at angle 7 (end of first line); while on the Reverse there is a similar group at angle 8. Another Gold coin—a Mohur, dated 1739 *Ś.*—was obtained by purchase.³ This has the same inscriptions as the B.M. Mohur of 1739 *Ś.*; but the latter is apparently devoid of ornamentation on both sides. The new Mohur is chiefly characterized by having the Dragon to L., at the bottom of the Obverse, only very sketchily shown. The only other ornamentation on this side is a group of 3 dots at the beginning of the first line (side 2). On the Reverse, there is a semicircle with 5 dots above the *Ra* of *Rādha*, and a group of 5 dots at the beginning of the first line (angle 2). The defective representation of the Dragon (which is also found in the Shillong Mohur of 1740—S.C. No. 4) suggests that the coin was struck in a period of political confusion, and probably not at the official mint. (For reproduction of this Mohur *vide* No. 7, Pl. 5).

The two Rupees of 1740 *Ś.* found in the Collection differ in ornamentation from one another as well as from that of S.C. No. 5, and the same is the case with the two undated $\frac{1}{2}$ -Rs., the ornamentation of both being different in various ways from that of the three $\frac{1}{2}$ -Rs. at Shillong (S.C. Nos. 6-8). The two Amherst $\frac{1}{4}$ -Rs. are dated 1739 and 1740 *Ś.* respectively. The latter is new to the Shillong collection, though specimens are to be found in the cabinets of the British Museum and Mr. Botham. The former differs from S.C. No. 3 in having no dots on the Obverse while on the Reverse there are two groups of 3 dots below the date, and segments with 3 dots at sides 1, 3 and (probably) 7. The segment at side 1 has also a semicircle to its right and left.

¹ *Vide J.A.S.B.*, 1910, p. 644. Dr. Wilson points out in his 'Description' that the legends on the Reverse of Brajanātha's coins, viz.: in the case of the Mohurs and Rupees, *Śrī Śrī Rādha Krishna Charana Kamala Makaranda Madhu Karasya*, or—in the $\frac{1}{2}$ and $\frac{1}{4}$ coins—*Śrī Śrī Rādha Krishna Pada Parasya*, clearly show that this King was placed on the throne by the party hostile to Chandrakānta. As the invocation of Hara Gauri on the latter's coins indicates, Chandrakānta, like his predecessors, was a Saivite.

² Gait (*op. cit.*, p. 223) notes that Chandrakānta after he was deposed in 1739 *Ś.* had his right ear slit in order to disqualify him from again sitting on the throne.

³ Indirectly from the *Toshakhāna* of the Nawāb of Dacca Estate.

The remaining Amherst coin of Brajanātha is a $\frac{1}{16}$ -Re. which is identical with S.C. No. 11.

No coins of Purandar Simha, Brajanātha's son, are known, either for the brief period of 1740 *Ś.*, before the second Burmese invasion, when he is said to have succeeded his Father, or for the $5\frac{1}{2}$ years, 1833–8 A.D., when he was again placed in possession of Upper Assam by the British.

JOGEŚVARA SIMHA.

(1743 *Śāka* = 1821 A.D.)

This Prince—the last nominal King of Assam to strike coins—is said to have been the son of an Ava monarch by an Assamese wife, and was placed on the throne by the Burmese General Ala Mingi, after Chandrakānta had fled for the second time to British territory. The only dated coin struck in his name that was previously known was a $\frac{1}{4}$ -Re. of 1743 *Ś.* in Mr. Botham's Cabinet, but the Amherst collection has added two more $\frac{1}{4}$ -Rs. of this year, which differ slightly from one another in ornamentation. On the Obverse of the first there is a faint group of 3 dots over the *ra* of Jogeśvara (between ll. (1) and (2)) and—apart from other ornamentation—two groups of 3 dots each above the *ke* of *Śāke* on the Reverse. The other has no ornamentation on the Obverse, while on the Reverse the two groups of 3 dots above the top line are separated, one being above the *śa* and the other above the *e* of *Śāke*. A reproduction of the former will be found as No. 8, Pl. 5, from which it will be seen that the inscriptions, etc. are as follows:—

Obverse.

- (1) *Śrī Śrī Jo-*
- (2) *geśvara Si-*
- (3) *mha nripasya.*
- Group of 3 dots between ll. (1) and (2).

Reverse.

- (1) *Śāke.*
- (2) 1743.
- Five groups of 3 dots each, two above l. (1), and one each to right, left, and at bottom.

The remaining two Amherst coins of Jogeśvara are undated $\frac{1}{2}$ -Rs.—apparently identical with S.C. No. 2 and Pl. V, No. 13.

Nothing is known for certain as to how long Jogeśvara remained on the throne of Assam, but the fact that Chandrakānta was induced by the Burmese to return at some unspecified date before the outbreak of war with the British in January, 1824 A.D. (on the plea that Jogeśvara had only been made King owing to Chandrakānta having fled the country) seems to show that Jogeśvara was regarded by the Burmese as an even greater puppet than his predecessors. Chandrakānta was, however, thrown into prison at Rangpur as soon as he returned, so possibly Jogeśvara remained as titular King till the final expulsion of the Burmese from Assam in 1825.

H. E. STAPLETON.

NOTE ON TWO ADDITIONS TO THE AMHERST COLLECTION.

Dr. Stapleton has asked me to note the description of coins numbered 10 and 11 in the additions made to the Amherst Collection.

No. 10, Tipperah Rupee (Plate 5, No. 9).

Obverse : in square, with arabesques in segments.

*Śiva Durgā pa-
de Śrī Śrī yuta
Rājadhā+ra
Mānikya Devaḥ*

Reverse : lion to left. Above, crescent and dot.

Between feet, *Śāke* 1707.

Æ.

This type of Rājadhara's coins differs from the more ordinary type which has the syllable *Mā* at the end of the third line instead of the beginning of the fourth, and has not the mark + between the *dha* and *ra*.

No. 11, Manipur Rupee (Plate 5, No. 10).

This is a coin of Chaurajit Simha of Manipur dated Ś. 1734 (1812 A.D.). A similar coin was published by Mr. Thorburn in N.S. XLII, No. 284, p. 30, but I read the inscription rather differently than Mr. Thorburn did, so give it in full.

Obverse

*Śrī-man Manipure-
śvara Śrī Chauraji-
ta Simha nṛpavara-
sya Śāke 1734*

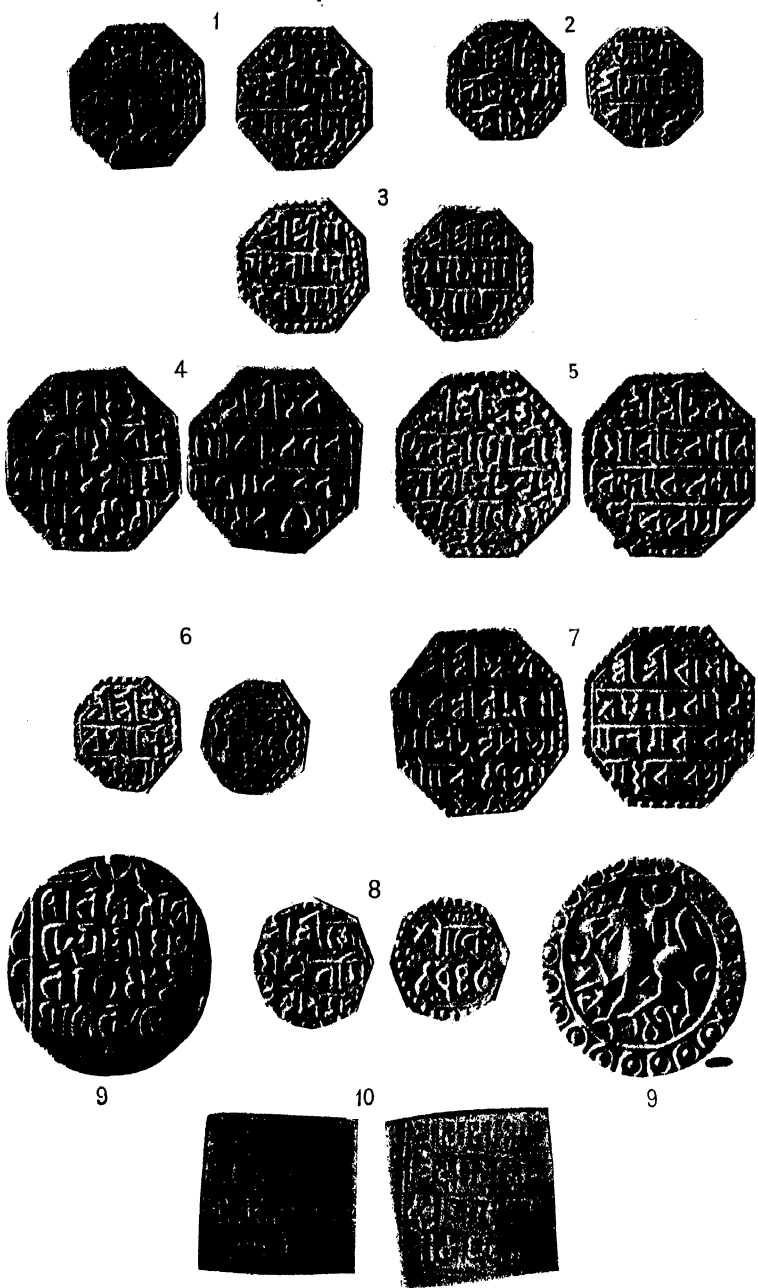
Reverse

*Śrī-mad Rādhā Go-
bind padāraviñ-
da makaranda ma-
no madhukarasya*

Square Æ. Wt. 173·08 grains. Diam. .83 in.

Chaurajit (not Chandrajit as read by Mr. Thorburn) Simha reigned from Ś. 1725 to 1734 (A.D. 1803-12), *vide* the table at p. 218, Cat. of Provincial Cabinet of Coins, E. Bengal and Assam, 1911. This coin was bought by Dr. Stapleton in Calcutta in 1909.

R. BURN.



Coins of North-Eastern India --Assam, Tipperah and Manipur.

1

2

3

